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# THE HIGH COST OF LIVING AND THE VETERINARIAN

That the cost of living is advancing there can be no doubt. Particularly unfortunate is the fact, that the staple articles of diet, bread, eggs, potatoes, cheese, sugar and meat are increased in price. This is to be regretted because the staples are essential for health and an insufficiency means malnutrition, lowering of stamina, decreased vitality and greater susceptibility to disease. In this connection the prediction has been made that the disease known as pellagra is likely to increase during the coming year. The situation is so real that it has received the attention of the Public Health Service. Investigation has determined the cause of pellagra to be an insufficient and poorly balanced diet. Through the application of this knowledge the disease was greatly reduced during 1916. Under the new scale of prices, increased from 25% to 50%, there will be many who must of necessity limit or deprive themselves of some of the staples of diet.

This condition applies to fodder as well, and because of its increased cost it is reported that, in some localities, many have sold

their cows and as a result there may be a decreased supply of milk, which is regarded as one of the best pellagra prophylactics. Meat, eggs, beans and peas are also regarded as prophylactics. If the reduction or absence of some of these articles from the diet is conducive to pellagra, it is also quite self-evident that an insufficient diet is conducive to some of the other ills to which the flesh is heir. Hunger is an inherent instinct. Failure to gratify it spells disaster of variable degrees. Food is essential to the maintenance of life; it is also requisite for restoration to health in the sick and convalescent. True prosperity is of service to the community only when the standard of living is raised in that community and there is opportunity to exercise thrift to provide against emergencies.

Although the high cost of living involves veterinarians as well as others, there is an aspect which should demand special interest. The annual direct losses from animal diseases are estimated at \$212,000,000 as the result of the prevalence of hog cholera, Texas fever, tuberculosis, contagious abortion and some other diseases. The reduction or eradication of this loss lies chiefly in the hands of the veterinarians. The task is an enormous one but there is evidence that some progress has been made. It is a task that involves the best talent of the profession and the highest educational facilities available to even a greater extent than exists at the present time. The opportunity is an exceptionally great one. Each reduction in loss is a double gain as it represents not only the financial value but the possibility of further use for breeding and increased production.

The bob-veal bogy, with its arbitrary age limit, is not exciting the terror it formerly did. The federal government is basing its inspection of calves upon quality rather than age limit, which only semi-divine qualifications could determine. It is rational that signs of immaturity in the quality of the flesh may be as detectable as certain diseased conditions and suffice for its rejection. It is not unlikely that some of the states will take the same rational attitude as does our government and other enlightened nations. In this event much waste will be avoided, which, in a way, has its bearing on the high cost of living.

Checking the loss of animals from disease, increasing their productivity and avoidance of waste, all have their bearing on the high cost of living and are matters in which the veterinarian may take a direct part by action, counsel and advice.

P. A. F.

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### AN IMPORTANT DECISION IN LIVESTOCK SANI-TARY CONTROL WORK

During the foot-and-mouth disease epizootic in 1914, one H. S. Bomberger, of Pennsylvania, formed a "Protective Association" to resist the efforts of the State Livestock Sanitary Board in eradicating the disease by the plan of killing affected and exposed animals. He conceived the plan of having a bacteriologist examine samples of milk and finding no evidence of foot-and-mouth disease in the milk, the farmers were to ship the milk from affected herds in defiance of the quarantine regulations. In pursuance of this plan he visited several quarantined herds and took away samples of milk: for this offense he was prosecuted, the indictment being drawn under the Act which states; "After the establishment of any quarantine authorized by this act, and posting of notices required by law, it shall be unlawful for any person, without a special permit in writing from the State Veterinarian or the State Livestock Sanitary Board, as the case may be, to remove from or to any premises within the limits of the quarantine any domestic animal or poultry; or to remove from any quarantined area or premises any hay, straw, grain, fodder, or other food, etc."

Inasmuch as milk was not specifically named, it was contended by the defendant that milk was not covered by the act, while the prosecution argued that milk should be included in the general term "other food". Both sides agreed on a statement of facts; "that the premises were lawfully quarantined and that milk had been removed".

In a brief submitted by the Commonwealth it was stated that it was not believed the defendant would contend that the criterion of establishing the likeness of milk to the other foods as specifically named would depend on the nature of the food itself so much as the purposes for which such food was used. The purpose of the act and practically the section quoted was to prevent a spread among domestic animals of transmissible diseases, and for that reason it sought to prevent the removal from infected premises of vehicles of transmission. In another section of the same act milk is recognized as such a vehicle of transmission, in that its use as food is prohibited where such milk comes from an infected source, until the same has been treated as therein specified. The act itself recognized milk as food for domestic animals and it was submitted

that in construing a particular section of the act the Court would look at the whole act, its intent and purpose, and not only gather from such act the purpose sought to be attained by it, but also in so far as the same might throw any light, be guided by such light in the interpretation of any doubtful section of the act.

In rendering the opinion the Court stated: "The question presented is whether milk embraced by the term 'other food' as used in the section referred to. \* \* \* \* \* 'other food' cannot be interpreted to mean food used by animals alone because the word 'grain' is one of the articles of food mentioned, and is used as a food by man as well as by beast. Nor can it be restricted to articles of food belonging to the class to which those specifically named belong. If so, nothing would be added to the prohibited list, for grain is a collective word and necessarily includes other articles of food belonging to the same class as those specified. \*\*\*\* The general object of the statute before us was to prevent the spread of transmissible disease among animals and poultry. If the word 'food' is given its general and common meaning it would include milk, the product of the animals which were quarantined on the premises in question. The removal of milk from the premises would just as likely spread the disease as the removal of any of the other articles of food, especially if the milk be taken from animals under quarantine for a transmissible disease. We think, therefore, to carry out the purpose of the Act, the proper interpretation of the words 'other food' requires us to hold that milk, the food which was removed from the quarantined premises, falls within the statutory prohibition. This article of food comes both within the letter and purpose of the statute. \* \* \* \* It is true the removal was for an entirely innocent purpose but this can make no difference. The prohibition of the statute is absolute.'

In pursuance of the findings of the Jury, we direct a verdict of "guilty" on the second count of the indictment to be entered against Harvey S. Bomberger, the defendant. \*\*\*\*\* (Signed) George Kunkel. P. J.

The decision will be of material assistance to the Pennsylvania State Livestock Sanitary Board in handling transmissible diseases. It will also establish a precedent which may be of assistance to livestock sanitary authorities of other states. EDITORIAL

### THE OUTBREAK OF VESICULAR STOMATITIS

During the early fall of 1916 reports were received from several sources to the effect that a disease involving the mouths and particularly the tongues of horses existed at the concentration remount station in the vicinity of Chicago, Ill. A careful and systematic investigation was immediately inaugurated, which indicated that at this time the disease was confined solely to equines and that the infection could be traced back to similar remount stations at Grand Island, Nebr., and Denver, Colo. At these points horses and mules had been gathered together by agents of the French and English governments for shipment abroad, and the disease found ideal conditions for its spread among the thousands of these animals closely quartered in barns and pens. As the disease was undoubtedly contagious, local quarantines were recommended and enforced. Sick animals were separated from the well, the healthy but exposed were held for eight days before being allowed shipment, infected pens were cleaned and disinfected, and the mouths of the sick animals were thoroughly washed with a weak solution of permanganate of potash.

Several weeks later, a livery barn in Chase County, Nebr., became infected as a result of the owner shipping a carload of horses to Denver for Army purposes and the return to the livery barn of several rejected horses. Three or four days later these rejected animals developed the disease, which spread to other horses and one cow in the livery barn. The disease was carried back to several ranches in that vicinity by the ranch horses which had been driven to town by their owners and fed and watered at this public livery barn.

The disease now seems to have reached its most virulent stage, and having affected many of the horses on these ranches, it spread to a number of cattle but did not involve the hogs which were running in the same pastures.

The spread of the disease to the Chase County district was brought indirectly to the attention of the bureau late in November, when a shipment of cattle from that locality to the Kansas City Stock Yards was found by the bureau inspectors to be affected with lesions in the mouth strikingly similar to those of foot-and-mouth disease. All precautionary measures were immediately taken, outgoing shipments from the yards were stopped, the cars carrying cattle were located and disinfected, and the cattle were traced to

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their point of origin in western Nebraska. In the meantime, experts were sent to the latter point as well as to Kansas City, and a series of careful and comprehensive experiments was immediately inaugurated at those points and also in Washington. As a result of these tests and the reports from the field inspectors, the opinion was reached that the disease in question was not foot-and-mouth disease, but vesicular stomatitis, a contagious disease affecting the mouths of horses, but at times spreading to cattle also.

The most striking lesion of this disease is the occurrence of vesicles or blisters followed by erosions chiefly on the tongue, but also involving other portions of the mouth and occasionally the This disease is known in Europe and South Africa and has been observed occasionally in the United States. The present outbreak, however, is the most extensive yet noted in this country. While the disease has not the great economic importance of footand-mouth disease, it nevertheless is contagious and causes considerable alarm owing to its close resemblance to the dreaded European disease. Furthermore, it is accompanied by numerous difficulties in making a prompt differentiation and will therefore remain a menace so long as it prevails. For these reasons it is strongly urged that local quarantines to prevent its spread be imposed by State live stock officials in whose territory the disease is found. All owners and handlers of horses, mules, and cattle, particularly liverymen, managers of stock yards, and stockmen, should be directed to separate sick from well animals, clean and disinfect contaminated premises and equipment, and have all infected animals appropriately treated.

The opinion that the malady is not foot-and-mouth disease is based on the fact that persistent observation of sick animals has failed to reveal certain typical symptoms which would be expected in an outbreak of foot-and-mouth disease. The drooling, vesicles, and erosions are similar in appearance to those produced by foot-and-mouth disease, but in none of the animals examined in the field has there been found any soreness of the feet which is a common symptom of foot-and-mouth disease. Moreover, many horses have this particular ailment, and horses have not been observed to contract foot-and-mouth disease in any of the previous outbreaks in the United States. Hundreds of hogs exposed to the disease and in association with the sick animals in pastures have shown no signs of the malady, and this is regarded as significant because in the

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last out break of foot-and-mouth disease hogs were as susceptible to foot-and-mouth disease as were cattle. Exposed sheep also fail to show the disease, yet these cloven footed animals are also susceptible to foot-and-mouth infection. The disease seems to be local and not a systemic infection like foot-and-mouth disease, and unlike the latter, it is not ushered in as a rule by any apparent rise of temperature. In a number of cases of vesicular stomatitis the lesions appeared to be continuous or progressive and not explosive as in foot-and-mouth disease. In these instances secondary lesions were apparent on a number of consecutive days in the mouths of both horses and cattle and vesicles were observed on the base of tongues whose free portions were almost denuded of mucous membrane as a result of the rupture of similar vesicles six or seven days before. Furthermore, instead of increasing in virulence by passage through a series of calves as foot-and-mouth disease has always done in our previous experiments, vesicular stomatitis became greatly reduced in pathogenesis and required a constantly increasing period of incubation before manifesting lesions of the disease. Likewise, the virus of vesicular stomatitis apparently retains its vitality but a relatively short time outside its host. Although numerous filtrate experiments have been conducted, in no case has the disease been reproduced in this manner which is also unlike our experiments with foot-and-mouth disease.

Finally, the percentage of animals infected in each of the herds of cattle and the history of exposure without transmission of the disease except by immediate contact, would indicate that this ailment is not the highly contagious foot-and-mouth disease, which, once it is introduced into a herd, quickly affects practically one hundred per cent of the cattle and hogs on all the farms to which the virus may be carried by intermediate agencies.

The result of a preliminary study of vesicular stomatitis suggests the necessity of adding horses to the species of experimental animals (calves and hogs) which must be inoculated with suspected material in any future outbreak of disease bearing a resemblance to foot-and-mouth disease. Various organisms thus far isolated from the contents of unruptured vesicles have in no instance produced the typical disease in either horses or cattle, but the work is still unfinished.

In conclusion it must be apparent, even to the casual reader, that in vesicular stomatitis we have a disease more closely resembling foot-and-mouth disease than either mycotic or necrotic stomatitis and that Hutyra and Marek are correct in their opinion that a reliable differential diagnosis of this disease can be made only after inoculation experiments and careful observation lasting a number of days.

J. R. M.

### **EUROPEAN CHRONICLES**

Bois Jerome.

MICROBIAN FLORA OF WAR WOUNDS.—In the *Presse Medicale*, I find the analysis of an article on this interesting subject by Dr. A. Cayrel.

Of all the new ideas obtained since the beginning of the war, that of the constant infection of wounds is the one most unanimously admitted. Another, no less firmly accepted, is the double telluric and fecal origin of this infection, realized by the appearance in the tissues of various foreign bodies, carrying with them dirt and fecal matter on the clothes or skin of the men fighting.

In fact, the flora of wounds is the same as that of the ground, especially of the trenches, and the same also as that of the intestines. This is saying that all kinds of germs are found, pathogenic and saprophytes, sporulated and non-sporulated, bacilli and cocci. Practically this diversity is represented in an association of aerobic and anaerobic microbes, the latter occupying the first place in the genesis of the most serious complications.

Anaerobic Microbes.—First in rank, in this category of germs is the Bacillus perfringens: a normal host of the intestines of man and animals: eminent proof of fecal infection, it is the common agent of gaseous gangrene: which does not mean that all wounds where it is present, will fatally terminate in gaseous gangrene, except the bacillus finds a favorable condition of anaerobiosis or a medium of culture. This microbe does not seem susceptible of creating septicemia or of passing into the circulation: all the hemocultures made to that effect have remained negative. Yet, it may promote extremely serious toxemias. It is very exceptionally found in a pure state in the war wounds, it is almost always associated with other aerobic or anaerobic germs, diplococci, proteus, staphylococci, streptococci.

Next to this germ, the most frequently met is the Septic vibrio, which is also able to cause gaseous gangrene. It is a host of fecal

matter and of the earth, it is an energetic proteolytic but must also have favorable conditions to stimulate the progress of gangrene or of phlegmon. Its presence does not imply a serious prognosis. It secretes an active toxin.

Sacquepee has isolated in war wounds a special germ which he has named "Bacillus of the malignant oedema or B. bellonensis."

It is a microbe strictly anaerobic, able to reproduce a peculiar clinical form, the malignant gaseous oedema.

A Bacillus oedematicus has also been discovered, which, in local inoculations, has given rise to an oedema with troubles of a general condition of a toxic aspect.

The Tetanus Bacillus is quite common, though the use of the preventive serum has considerably reduced its action.

A microbe which has the morphological characters as the tetanic is the Bacillus putrifiens filamentosus or Pseudotetanus.

It is as common as the septic vibrios and exists in gaseous phlegmons and is an agent of all putrefaction.

Another putrefying bacillus is the Bacillus anaerobicus accazines and again as agents of suppuration the B. ramosus, the fragilis, The B. of jungano, The B. sporogenus of metschnikoff, various Anaerobic Streptococci of feeal origin and finally the Micrococcus fetidus found by N. Flessinger.

Aerobic Microbes.—The one most commonly found is the Streptococcus, which is present in every stage of war wounds. Its vitality is extraordinary and its resisting power to antiseptics is remarkable.

Then comes the *Staphylococcus* which has a less proliferating power and is present also to the end of the reparative work of the tissues.

The various Cocci, especially diplococci, are also very abundant, such as the Diplococcus crassus and flavus, the tetragenus, the Pneumococcus.

The Bacillus proteus is commonly met, and sometimes in abundance so that it kills the other germs and is found in a pure state

The B. pyocyanicus is constantly present. In the group of the B. coli this last is most easily isolated: but all the varieties of Colibacilli and Paracolibacilli may also be detected in war wounds. Even typhoid and paratyphoid bacilli may be found.

The Pneumobacillus of Friedlander is not rare and the Coccobacillus verodunensis has been discovered in some wounds. The bacteriological study of the development of wounds shows that the microbian elements vary in quantity and in quality in the different stages. The organisms are found more rarely, if the examination is made before the sixth hour. If made 24 hours after the wound is received, the germs at times cannot be counted, they are everywhere.

Indeed, it seems that the evolution of the microbian flora is, according to some, somewhat constant in the appearance of the species of microbes during the first hours, viz: 1st the bacillus of the family vibrios—perfringens, 2d the group of the coli-bacillus, 3d the cocci (staphylo, strepto, diplococcus, saprophytes).

The microbes are not present in all parts of the wound and there are bacterial areas along active centers of germination, true microbian nests in the center of which a close examination reveals generally some fibrillae of tissue or some small thread of clothing. Again a rich growth of perfringens may be found in a very small spot which escapes the action of free air or of antiseptics.

The ideas presented in the article of Dr. A. Cayrel are of importance for the surgeon and of great interest also to the bacteriologist.

Massive and Cystic Adenomas.—The mammae of carnivora, like the breasts of women, are a seat of predilection for the development of all varieties of neoplasms.

Profs. G. Petit and H. Germain have presented a communication entitled the benignant tumors of mammae in sluts and female eats, which is reproduced in the *Bulletins of the Société Centrale*, in which is related a number of observations, the reproduction of which adds much to the history of these neoplasms.

In the first part, four cases are recorded.

One of Massive Fibro-Adenoma of the mammae in a slut, which consisted of a mass, oval in shape, bosselated and about as large as a pigeon's egg. It was a fibrous body, located in the inguinal mammae.

Another was a Cystic Fibro-Adenoma of the mammae also in a slut. It was represented by a flattened tumor 15 centimeters long, 8 wide and 3 to 4 thick. It was not adherent to the skin and had a fibrous capsule, which separated it from the abdominal walls. It was irregularly lobulated, bosselated, formed of large cysts containing a colloid, yellow or brown material. It also showed grey-

yellowish patches analogous to those found in massive fibro-adenomas.

The third observation was also in the same region of an animal of the same species, viz: mammae of a slut. It was a Cystic and Hemorrhagic Fibro-Adenoma. A globular tumor as big as two fists, situated in the inguinal mammae, not ulcerated on its surface, covered by the skin moderately stretched, and having a thick retracted teat, as observed in old sluts that have nursed many pups. On section this tumor was found hollowed with cystic cavities, communicating with each other, although some were isolated and separated by special septa. In the non-cystic part of the tumor, it was represented by striae indicating its hemorrhagic condition.

The fourth observation, again in the mammae of a slut was one of a Large Vegetating Cyst. This was represented by a tumor not very large, weighing only 80 grammes and resulting in the entire cystic transformation of an inguinal mammae. The skin was intact, the teat large and cystic by dilatation of the galactophorous canals.

The second part of the communication of the writers related to Osteo-Chondromas and Osteo-Chondro-Adenomas of the mammae.

These osteo-cartilaginous tumors are frequent in sluts. They are characterized by their special consistency and the presence of cartilage found on their section.

In some cases, bony tissue is also found in more or less abundance. The cartilaginous structure is greater in recent growths, in the oldest it is the bone that predominates.

The first observation is on an Osteo-Chondroma with Peripheral Fibro-Adenoma. In that slut, the growth was as big as a mandarin, round, weighing about 50 grammes, and extracted from a ten year old animal. It had a capsule, very adherent and thick on the outside, on which was a glandular tissue transformed into fibro-adenomatous tissue with small cysts. The other mammae of the slut had nuclei of fibro-adenomas forming.

The second observation was an Ossified Chondroma, representing a tumor of 500 grammes in weight, removed from the mammae of an aged slut in which the parts were entirely ossified and were readily observed.

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The third case referred to a *Papillar Osteo-Chondro-Adenoma* of the mammae of a slut. It was as big as the fist, weighed about 500 grammes, had the form of a flattened sphere and was hard, compact and osteo-cartilaginous.

The fourth observation relates to a Vegetating Osteo-Chondro-Adenoma of the mammae of a dog, developed at the expense of one of the inguinal mammae. This tumor was situated in the region of the sheath. It appeared as an osteoma, weighing 450 grammes, was as big as the first, elliptical in shape and irregularly mammillated by the presence of projecting superficial nodules which were intimately connected with the body of the tumor. It was composed of two lobes, intimately connected and as if articulated. The central part of the growth was completely ossified. On the level with its inferior extremity there were numerous cystic cavities filled with yellowish matter.

All these observations are completed by the description of the histologic characters and illustrated by very interesting woodcuts.

TETANUS AND ITS PREVENTION. Notwithstanding the many publications that have found their way in professional journals and notwithstanding the many discussions its treatment has promoted in scientific circles, the subject is still one of interest and occupies many pages of our periodicals.

First, I notice a long article in the *Presse Medicale* on the *Prevention* of tetanus by the antitoxic serum. While it was for some time considered as doubtful in most cases, it is now admitted that the systematic application of the preventive injections has reduced to a very small proportion the early cases, which most likely might be avoided by a proper use of the preventive serum and a better knowledge of conditions which promote the development of the tetanic spores.

There are indeed some essential conditions which always ought to be thought of.

For instance, one relating to the condition or the form, under which the tetanic spores soil the wounds and which are more resistant. They are not destroyed by ordinary antiseptics. They disappear only after being absorbed and digested by the leucocytes. Experimentation on animals has proved that even after several months spores can be found in leucocytes, immobilized it is true, but ready to revive and germinate at the first exposure favorable to their development.

Then again, it must be remembered that the antitetanic serum is not a *Bactericide*: it has no direct action on the spore nor on the bacillus itself. It is simply antitoxic, it neutralizes the poison secreted through the culture of the virus, and during the time of its action. It then protects the organism against intoxication and leaves to the phagocytes, which it stimulates, the work of fighting the specific bacillus, which develops in the wound, and to the surgeon the obligation and the time to suppress this dangerous center.

It must also be borne in mind, that the protection given by the serum is limited in its time. It lasts as long as the antitoxin is present and circulates in sufficient quantity. After a delay of an average of 8 to 10 days in man, if the culture of the virus continues, the secreted toxin will not find antitoxin to be neutralized and it will have full liberty to produce its ordinary effects. If on the contrary, the supply of antitoxin is renewed in proper season, the resistance will be kept up for a certain period after each new injection. Hence the indications are not to trust to only one injection as a lasting measure of prevention.

Finally, the special condition must also be taken into consideration. For some wounds there are specific conditions for the development of the germs. The nature of the traumatism, the peculiar condition of muscular or bony attrition, the presence of soiled foreign bodies, etc. If only one preventive injection, even abundant, is made, complete protection cannot be expected. Tetanus may be slow in its appearance but it will certainly appear.

The article in the *Presse Medicale* which is by Prof. Vaillard, is continued by the examination of some specific cases of the disease of a various nature and occurring under special conditions. After making a few remarks relative to the danger of anaphylactic manifestations, the writer ends by saying: "That notwithstanding a sure and positive efficacy, antitetanic serum cannot always, and without failure, prevent the disease. Such a power is not possessed by any preventive method, even one with a good reputation and relative certainty does not exist in the domain of biological phenomena as it is exposed to many contingencies that escape us." "The serum is one of the means of preservation and in the cases where the disease takes place after its use, it has nevertheless a beneficial effect as the attack is very often less serious."

SULPHATE OF MAGNESIA IN TETANUS. The advantageous use of this treatment has already been referred to in other publications.

Its use with the wounded during the present conflict has been the subject of a communication in the Archives of Internal Medecine by an American physician, Dr. Robertson.

Since Meltzer and Auer, in 1906, called attention to the good effects of rachidian injections of sulphate of magnesia in tetanus, the method has been used with various results. Some authors have advocated the simple subcutaneous injection or again the intravenous.

It is interesting to know the results obtained by the method in the different armies during the war.

In Germany a certain number of authors are positively opposed to it in the treatment of tetanus. Czerny, while admitting its quieting action on the pain is not convinced of its real value. Angerer has not used it. Kreuter has lost two patients by the treatment. Hochkaus, Homeier, and Goldscheider have obtained no good results. Madelung reserves his decision. Mathis believes that its good influence is limited to the first injection.

In opposition other authors praise the good effects of the sulphate of magnesia. Eunike has made intra-rachidian injections of 10 c.e. of a solution of 10% in 8 severe cases, and 4 recovered. Wieselin has used it on 12 patients; he made, in Vienna subcutaneous injections as high as 80 c.c. of a solution at 25%. He states that the association of the magnesia with chloral is superior to any of the narcotics.

Usener, with a very sick patient who recovered, has made more than 10 subcutaneous injections at intervals of 2 to 4 hours; the solution of 50% seems less painful. No accident followed. Dreyfus and Unger have treated 32 cases with 22 recoveries. Wienert has obtained good results with subcutaneous injections of 10 c.c. of a solution at 40%. Out of 40 cases treated only 16 died, and Grundman believes that in 25 of the cases treated the sulphate of magnesia has proved superior to all the narcotics in the treatment of tetanus.

In Russia L. Feinmann has had 95 cases in the hospital of Dwinsk, 74 died. He has had no good results with the injection of serum nor that of the sulphate of magnesia.

Deroninsky reports that he has had 5 recoveries out of 6 cases treated with the sulphate.

In France, Monod has treated with success 4 cases, with chloral in large doses and intra-rachidian injections of the sulphate.

Schoute has seen two recoveries out of 3 cases in soldiers treated with intra-rachidian injections.

In England, Bruce gives a most complete review of cases of tetanus treated in the English military hospitals during the first year of the war: 231 cases have been treated and gave a mortality of 57.6%, while 179 English soldiers treated in France and seldom with sulphate of magnesia, had a mortality of 78.2%.

A New Case of Sodoku. I am quite sure that this name is a surprise to many. The interest it may promote, may justify its publication. It appears in the *Presse Medicale* as an analysis of an article by Dr. D. Flazza in *Il Morgagni*.

Sodoku is an affection following a rat's bite and is most likely of parasitic origin. It has been observed and described principally in Japan, where several authors have been able to detect the presence of the specific parasite. In later years, cases have been published in America and in Europe. One case has been mentioned in Germany, three in France, five in Italy, the present is the sixth in that country.

The author describes briefly the evolution of the disease. rat bites more or less deeply and a wound is made which cicatrizes in a few days. Then after an incubative period of one to four weeks, suddenly, while in a comfortable condition, there appears local phenomena characterized by inflammatory manifestations at the seat of the bite: redness, swelling, pain, formation of vesicles ending in ulcerations, with lymphangitis and more or less generalized adenitis, general phenomena of chills, uneasiness, general soreness, headache, nausea, anorexia, dizziness, frequent pulse and high fever but no visceral disturbances. Finally there appears a more or less wide eruption of rounded patches or striae, more or less deep in color, of various sizes, some times painful and similar to what takes place in exudative erythema. The fever occurs intermittently and may be accompanied, or not, with increased cutaneous or glandular manifestations. Little by little after several months the various phenomena subside and the patient recovers.

There are, however, some severe forms with cough, muscular and articular pains, troubles of general sensibility, more or less generalized oedemas, delirium and coma. According to *Hata*, in Japan where the disease is frequent, the mortality reaches 10%. Some authors who have observed cases in Europe, have not yet suc-

ceeded in finding the parasite described by Japanese writers. In the case recorded the patient had presented all the phenomena attributed to the disease, except the erythematous eruption. The disease was followed in its entire course, but the parasite was not discovered, notwithstanding that many investigations were made for it. Recovery took place after several months after an injection of arsenobenzol, to which, however, the author does not attribute the success.

## SUMMARY FROM RECENT PUBLICATIONS RECEIVED AND BIBLIOGRAPHIC ITEMS.

Titles marked "X" will be summarized. Those marked "O" will appear as abstracts.

JOURNAL OF COMPARATIVE PATHOLOGY AND THERAPEUTICS.—Sept. 1916. (X) A Granulomatous Affection of the Horse—A case of Holoacardius Acephalus in a Bird—(X) Johne's Disease, The Reaction of Animals to "Johnin."

VETERINARY NEWS—October 14th. Intestinal Strangulation in the Horse—Open Stifle Joint in a Mare—A case of Intussusception.

October 21st—Inversion of the Vagina in Cows—Some Cases, Unexpected Foreign Body—A Fishing Hook, a Dog and Radiography.

VETERINARY RECORD—October 14th—(X) Specific Vulva Vaginitis—An Unsuspected Unsoundness in a Horse.

October 21-Canine Cases-Pelvic Fracture.

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VETERINARY JOURNAL—October 1916. A New Form of Lymphangitis in Army Horses—On Subcutaneous Tuberculosis in Bovines—Notes on the Early History of the Veterinary Profession in the War—A case of Melano-Sarcoma in the Dog—Open Joint in the Horse.

REVUE GENERALE DE MEDECINE VETERINAIRE—(X) Transmission of Tuberculosis Poreine to Man—Reinoculation in the Calf—(X) Sand Colics.

IL NUOVO ERCOLANI—1st and 20th of October—Anaphylactic Reaction in the Horse, Secondary to Intravenous Injections of Horse Serum—New Contribution to the Study of the Lesions of the Penis in the Horse—Contributions to the Study of Coccidiosis in Birds.

BIBLIOGRAPHIC NOTES—The Fate of Mammalian Tuberculosis Bacillus in Sparrows and Chickens by Dr. L. Van Es and A. V. Schalk.

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Contagious Epithelioma in Chickens—Its Control by Vaccination by W. B. Mack and Edward Records.

A. LIAUTARD.

### LOST OPPORTUNITIES\*

DAVID S. WHITE, Columbus, Ohio

The honor and pleasure of addressing you, my colleagues, on this occasion were not sought by but thrust upon me. The gentleman whom I find to be chairman of this section not only requested me to do this thing but even went so far as to assign a specific text—"Lost Opportunities". He probably felt with Bishop Williams of this city (Detroit) that "a parson without a text is like a shoemaker without his last. He has nothing over which to shape and form his thought". A text has the advantage of affording a point of departure; whether it also furnishes a point of arrival and application will depend upon the speaker's individual sense and ability. Let us pray for help in these latter regards!

Veterinary medicine is not simply a science like physics or chemistry. The practice of it is in reality an art; but underlying the art are many basic sciences which form the foundation of biology. While it is possible to learn and apply the art of practice without a knowledge of the sciences upon which it is built, experience teaches that where this knowledge is lacking. progress is arrested and the plane of the art lowered to mere charlatanism. Too many members of our profession, I think, overemphasize what they term the "practical". I presume a patient railroad engineman could teach a baboon how to stop, start and back a locomotive. He might also instruct his pupil how to pull the whistle cord and to apply the air and sand. In fact with time and diligent training I can conceive that the baboon might become as proficient in these arts as the engineman himself. But is the doing of these things, the operating of the regulatory mechanism all there is to engine driving? Would any school of engineering want to grant this monkey the degree of mechanical engineer? Is there no more to the profession of veterinary medicine than drenching horses with "colic", pumping up the udders of "milk fever" cows, injecting "serums" under the skin of animals and castrating "ridgling" colts? Is the almighty dollar the only standard by which we measure suc-

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cess? Is there no opportunity beyond that afforded by such routine service? The answer to these questions is personal and depends upon the individual. Most of us measure our services in the terms of the coin of the realm. If you ask the average practitioner how successful he has been during the past year, for instance, the inevitable answer is he did so many dollars' worth of business.

To the "bigger man" our profession offers more than a mere monetary remuneration for routine services rendered. with a better preliminary education, a broader training and a mind capable of greater comprehension he can assume the true professional rather than the trade view of the profession. viously he will be more interested in correlating the fundamental sciences with the facts pertaining to the cause, recognition, prevention and cure of disease. He possesses power not only of supporting but elevating the profession; and a graphic portrayal of his activities in this regard is represented by a vertical rather than a horizontal line. He is never mediocre but stands above the average and is ever rising from lower to higher heights. One of the lost opportunities is our failure sometimes to recognize the value to the profession of such an individual and to use every influence to induce more men of this type to enter it until our own ranks will contain a greater number of the kind of men we consider ""exceptional" who are now being shunted into medicine and law.

Taking up the school-education side of the problem of inducing better men to become veterinarians it is now generally conceded that preliminary to entering the professional college the minimum requirements should be the training of the high school. To this there is some dissension, the dissenters using the old argument that by setting the entrance requirements beyond the grammar grades is to deprive the country boy or poor boy of an opportunity to enter the profession. This time-honored and threadbare argument is lustrous only from long use. It has served for decades to check the development and progress of professional education in this country. As this argument can only appeal to the thoughtless and ignorant, it is usually insincere. In any case it is a reflection upon the youth whose home happened to be in the open country or farm village or whose pocket-book happened to be empty.

In the College of Agriculture of the Ohio State University the percentage of students from the open country or village is no higher than in law or engineering. Fully 25 per cent. of the students in American Universities are poor boys. The country or poor boy resents the invidious comparison. He realizes the value of an education usually even better than his brother more fortunate in these regards. Thousands of them are yearly being turned out of the high schools and colleges of this country. Not long ago I sat among nine college professors, some of them deans of colleges. Of the nine, five were "born and raised" on the farm and of this five, four worked their own way through The Governor of our state and the President of our University were each farm-bred and both poor in youth. There is absolutely nothing in this plaintive plea for the "poor country boy" unless you limit the definition to those who are uneducated because they lack brains, ambition and courage. All the other professions have barred young men of this stripe. Do we want to fill the ranks of our profession with such stuff as this? Is our profession to become the asylum of the rejected from other professions? At present most of the state schools of veternary medicine demand high school training as the minimum requirement for entrance. In medicine they have gone far beyond this. All of the accredited medical schools in America now demand at least two years of college work for entrance and the better ones four. This high standard has been brought about largely by the American Medical Association, a sister organization of ours. A river cannot rise higher than its source. The source of any profession is the man. No profession can make a man, but men do make professions. If the calibre of the man be kept low, the profession itself is kept low.

The plea of the non-endowed, poorly equipped medical school was: "It will put us out of business". It did. What was the result? A better class of better trained men entered the profession until today American medicine is no longer ridiculed by other countries but given a high place in their estimation. Generally speaking, we pay for what we get in this world, although sometimes we do not get what we pay for. I firmly believe that as we increase the calibre of the product of our veterinary schools the emoluments of practice will likewise increase. The "trained baboon" type of veterinarian is too easily satisfied. A dollar

looks too big to him. A veterinarian renders his community a certain service which has a rather fixed market value and receives in return for this service just what it is worth. It may be \$400 or \$4000 per annum depending on his education, training. business acumen and personality. All else equal, the better educated the man is on entering his college work the better prepared will he be to carry on that work. He will get more out of the course of study and in post-college life will be able to render to the community in which he locates a far more valuable service. As in the long run the service has a fixed market value, the emoluments will be greater, his influence as a citizen greater and public opinion in regard to our profession enhanced. Heretofore there has been too much laxity in the demands for efficiency and proficiency. For the good of humanity the standards of our profession should be raised and raised from the bottom up. Many the youth who has lost an opportunity in the very outset of his professional career in that he has failed to avail himself of a good preliminary education which any young man, be he ever so poor, may obtain if he has only the brains, energy and courage to do so.

Passing from the preliminary to the college course the young man too often fails to realize the importance of the basic years of the curriculum. He looks upon chemistry, histology, physics or botany as subjects to be treated as independent entities which have no bearing on the more practical years to follow. Once he has "passed" these branches he dismisses them forever from his mind, taking it for granted that they will "never be of use" to him, probably thinking they were introduced into the curriculum for the sole purpose of serving as instruments of torture. attitude is by no means confined to the pure sciences. Even as important a subject as pathology is treated without serious purpose and with no thought of its connection with "special diseases" or what is usually called "theory and practice". How often in quizzing a class in medicine have I asked the question: "What is pharyngitis?" "Inflammation of the pharynx" is promptly returned. "What is inflammation of the pharynx?" "Why, pharyngitis". This shows the crux of the whole situation. Pathology has been treated as a lonely, isolated Robinson Crusoe, a castaway on an uninhabited island without a boat, submarine or airship, cable or wireless communication with the mainland of Application. Fully 90 per cent. of the disease processes

treated daily by the thousands of practicing physicians are inflammatory in character. Whether it be known clinically as "poll evil" or "proceitis", "quittor" or "puenmonia" fundamentally the process is an inflammatory one.

Subjects like animal husbandry, meat and milk hygiene and forensic medicine are also taken in a Pickwickian sense by too many students. There is no more important course in a veterinary curriculum than animal husbandry. The day of the "horse doctor" has passed. The modern veterinarian should be an animal engineer with a good practical knowledge of breeds and types of animals and the feeds and feeding of animals. His services in this regard should be as much sought by the animal owner as the usual medical service. The thinking husbandman would soon learn to appreciate the importance of this service and for it should be willing to pay an adequate fee. Furthermore, a knowledge of animal husbandry is essential to a better understanding of disease prevention. Most of the causes of internal ailments in our animals pass through the mouth with the food and water. Obviously, therefore, a study of feeds and water supply is essential to the control of diseases originating therefrom.

The student is not entirely to blame for the lack of appreciation of the pure sciences, animal husbandry, etc., things he looks upon as extraneous matter. Sometimes the teacher is at fault. The late Dr. Dieckerhoff used to say that "no one who could not ride a horse well should be allowed to teach veterinary students". While this maxim is not to be taken literally, its philosophy is sound. In veterinary schools there are now two groups of teachers, teachers of the basic sciences (the "laboratory men"), and clinical teachers. Those of the former group are usually not veterinarians and few among them have had veterinary training; those teaching the clinical branches are too often mere artists, many of whom even repudiate what the student has been taught in the classroom and laboratory. While the former group may consist of good pedagogues, what they teach does not always apply, as the veterinary back-ground is lacking. On the other hand the clinical teacher is too often ill-educated, too few of them are the prototypes of a Froehner, a Schindelka or a Bayer. effect of such contradictory pedagogy upon the mind of the student is well expressed by Lyon who says: "We know that an army of young men is every year turned loose into the clinical

subjects there to have their carefully built up habits of thought tumbled and scattered like block houses in a children's play room. After the intensive discipline of the laboratory branches, we find them dissipating their energies among a dozen subjects with no idea of relative values. We find them wearing out their eyes trying to see surgical operations from the peanut gallery, their intellects trying to assimilate half-digested theories and their hambones sitting out interminable lectures. Then we acknowledge with dismay that our average graduate is far from being a scientific physician and tends rapidly to degenerate into the typical routinist".

Too few of our veterinary teachers know anything about pedagogy. I do not believe that there are in the whole United States a sufficient number of good teachers of veterinary subjects to make up the faculty of a single well-manned veterinary school! Surely, therefore, no one veterinary school is adequately manned in this regard.

A college cannot furnish an education. This one must acquire himself. Thousands of persons who never entered the halls of an institution of higher learning, are nevertheless educated. One of the most intelligent and best informed veterinarian for his time I ever knew was a man who had been a country school teacher until the demands of a rich stock-raising community in which he taught forced him to take up veterinary work. He made a systematic study of the fundamental branches from standard texts and topped off his self-constructed and self-taught curriculum by reading carefully and thoughtfully the best medical and veterinary medical school books of his day. Assisted by a naturally good intellect and unusual powers of observation, he acquired enviable technical skill or the art of knowing "how" with which he coupled to a remarkable degree the theory of knowing "why". His powers of observation and deduction or "knowing how to know", more important even than knowing "how" and "why". made him valuable to his community and himself. Had he only had the opportunity of a college professional training he would have been a leader among us.

The average young man on graduation feels his education is now complete. Books, periodicals and association with more learned members of his profession he denies himself. He takes no interest in the professional organization beyond his annual

pilgrimage to the "state meeting" where he goes more often to "see the boys" or to frescoe the town a bright vermilion which he can do more safely abroad than at home. Such a man rarely makes an accurate diagnosis and his treatment of disease is largely guided by the influence of some drug-house drummer who is exploiting some new remedy which has become as fashionable to use as it is to wear a "Siss-Lizzie" or "sport" shirt on a sweltering July day. In fact most of his professional literature comes from the drug houses; he takes his post-graduate course from the drug drummer. He has allowed himself to degenerate into a mere routinist whose profession is to him a mere trade. Such an individual once in a while appears on the program at the "state meeting" perhaps. His essays carry so often the caption "What is it"? "What was it"? describing, maybe, a clinical case with obscure symptoms and no post-mortem record. Once in a while he announces something startling from a pseudo-scientific point of view-I once heard a paper on the "Origin of the Soliped Hog". The essayist traced it back to Mexico, where he stated, in all seriousness, a Merino buck sheep had had illicit relations with an unvirtuous sow, and as a result of this mesalliance the first litter of soliped pigs was created! I should have enjoyed, were I a lawyer, defending that buck against a bastardy charge before a United States Court. The soliped hog probably inherited its largely advertised immunity against hog cholera from its paternal ancestor, the sheep! At another meeting a paper was read proclaiming the value of intra-vascular bovine blood infusions to prevent glanders in horses! I believe there was some merit in this suggestion, for if the blood vessels of a horse are filled with ox blood the resulting hemolysis will absolutely protect that horse here against glanders or any other disease for that matter. However, knowing naught about horseheavens, I cannot be so sure about the immunity in the hereafter. Each of the essayists were locally well known members of our They both lacked the "know how to know" or deprofession. ductive ability so necessary to the physician. They were not the prototypes of a Schmidt, who by deductive reasoning with a knowledge of what he deemed to be an established principle worked out a successful method of tuberculosis eradication long before the tubercle bacillus was discovered, and who later made himself famous by giving to the world a successful method of treating parturient paresis of cows. Schmidt was a practitioner.

One great weakness in our educational system is the lack of adequate schools where the practitioner may elect post-graduate courses. A few schools do offer training but the curriculum is generally very brief and consists largely in attenuated and fragmentary courses in mere undergraduate subjects. A school of this kind needs large clinical facilities and plenty of clinical material available for didactic use.

Too many of us seem to think that efficiency will not be rewarded unless supported and sustained by protective legislation. While undoubtedly no man should be allowed to practice his profession who has not satisfied a competent board of examiners of his competency to serve the people, we must at the same time remember that the law is for the protection of the people rather than for the veterinarian. To be sure if the law is a good one and strictly enforced, competition which the practitioner too often considers the bane of his existence, is curtailed and, theoretically at least, his clientele will be numerically increased. However, no law can make a weak, ill-educated, unskillful practitioner of any better service to the community. This must come through other channels. He alone can make himself strong and efficient by taking advantage of every opportunity to increase his knowledge, his powers of observation and his deductive reasoning. Some weaklings seem to feel that to improve the state law governing practice is equivalent to improving the efficiency of every practitioner in the state. Really they have put the cart before the horse. As the efficiency of the profession increases through better educated, better trained and more influential men entering it, the laws regulating that profession will in proportion become strengthened. This has been the history of things in medicine and law. We had no medical law in Ohio until we got a better class of physicians; no veterinary law appeared upon our statutes until the numerical strength of the better class of veterinarians increased and he became a factor of influence direct and indirect. We went longer in most instances without a regulatory statute than the other professions only because our profession was younger and therefore relatively cruder. Generally speaking, it had not yet attracted to its opportunities many men of the best type. Notable exceptions prove this statement.

There is before us a great opportunity to make our profession what it should be in this country and what it is in many older foreign countries. To fail to realize the true situation, to keep our standards below those of other professions is to accept their "leavings". The right type of youth, the fellow with the right kind of stuff in him will pass us by to where his better educational preparation permits him to enter "higher up" as readily as he might "lower down" and do so without what he deems an educational sacrifice.

In conclusion permit me to indicate briefly a few of the opportunities which we cannot afford to lose:

- 1. Higher demands of those entering the profession. Its portals must be more carefully guarded. To leave the doors wide open and the whole an "open stage" upon which anyone who sees fit may enter and exit at will, will eventually lower us to a plane beneath the other learned professions and down to the level of the trades. I would not be unreasonable and demand that the gates be kept locked to all but the chosen few, for due regard for the urgent need of maintaining an adequate supply of trained men, even if not all of the highest type, must be recognized.
- 2. More intensified, better balanced, better taught curricula and better facilities and equipment for our colleges.
- 3. A standardized curriculum as to content of courses and curriculum. The length of the curricula in different veterinary schools in this country varies from twenty-one to thirty-six months, and the content of the courses varies even more.
- 4. More veterinary teachers; better veterinary teachers. The teaching of veterinary medicine is a profession in itself. Beyond mere routine pedagogy some may never get, but at every institution of learning a certain amount of research should be carried on. Of our veterinary teachers we should demand productivity. There is no more useless animal than a tough, old hen which never lays an egg.
- 5. More real, post-graduate courses and fewer make-shifts. There should be somewhere in this country a high-grade school open to the men in the field who crave more intensive professional knowledge. Such an institution would make a splendid federal investment which would a thousand fold repay the people all it cost.
- Stronger, better organized, less political and more scientific and therefore practical veterinary medical organizations.

Whether community, state or national in membership only the spirit of real service should underlie them.

- 7. Better technical literature, especially in the way of upto-date, sound, practical, well edited periodicals. Medical books are too short lived; most of them are obsolete sooner than a battleship.
- 8. A greater effort on the part of the veterinarian to become more of a social, political and generally influential factor in his community. I feel like cheering and my heart fairly swells with pride when I note that one of us has gained recognition of these kinds.

In our ranks is plenty of good timber out of which may be made good legislators, national, state or municipal officers. When I find a colleague Mayor of his home town I am more tempted to shine up my A.V.M.A. button and stick it in the lapel of my coat!

9. Adequate laws to protect the people (not us) against pseudo-veterinarians, fakirs, mountebanks, charlatans and quacks, those omnipresent ignoramuses tightly inflated with hot air but so often seemingly puncture proof. In this category I would include stock-food and veterinary-specific manufacturing members of my profession. They all form a blot on the escutcheon of one of man's noblest opportunities, an opportunity to relieve pain and distress, to save the country untold millions in money as was demonstrated by the last foot-and-mouth disease experience, and finally to contribute to a large degree toward the comfort and happiness of mankind—our profession.

Veterinary medicine is an inclusive topic. No one individual can hope to master it. Its aims may be formulated under many heads but chiefly it consists in knowing "the essential, fundamental facts pertaining to the cause, effects, recognition, prevention and cure of disease and to correlate these facts with the fundamental sciences". To become accomplished the veterinarian therefore must develop technical skill, powers of observation, judgment, thoroughness, persistence and precision. He should also have inculcated into him the ethical and professional ideals of honor, self-respect, altruism and social conscience without which the profession will degenerate into a business or trade.

#### DISCUSSION

Dr. Hoskins. I just turned to my colleague on my right. Dr. Hollingworth, and I said to him we need every little while just such a paper as this. We need to be recalled from the selfish side of our lives that too often sways us too far away from I have been delighted with the presentation of this paper. I have been helped materially to a much higher aspect of my own personal duties to my profession and to you, my fellow colleagues, and I have been stimulated to do much better with reference to the future by this recalling us to the higher sense of duty so well presented by our colleague, Dr. White. I trust that each one of us will think many times in the years to come of what he has said to us so forcefully and so well, and how he has pointed out to us the way in which we should go in order that we may make the work of the past look like a candle compared with the arc-light in the future. So I say, that we all certainly have benefitted this morning; and if we have traveled across the continent to attend this convention, and should not hear any other paper, it would have been well worth our while to have come from the longest distance to have listened to this wonderfully fine presentation of the every day aspect of our profession.

Dr. Mayo. There is one particular phase of this excellent paper that I wish to emphasize if possible. In visiting various veterinary schools of this country, or quite a number of them, as a member of the Committee on Intelligence and Education, one of the painful impressions is the poor quality of some of the teachers in those schools. It is a crime to waste the students' time with some of those teachers. Men, too, that have had an excellent training, thoroughly trained in some of the best universities of this country, and yet they were not teachers, they were not inspiring. There was a waste of the teacher's time, and more than a waste of the time of the students in those classes.

We have certain regulations regarding faculties, that they shall not be, so many of them, graduates of the institutions in which they teach, and so on. Of course, this is necessary in a certain way, but after all, it does not make so much difference where a man comes from, if he is a teacher. That is the thing. That is something that we need to look after more than ever in

our educational institutions.

Another phase that we also presented in our committee report was the need of the preliminary training. I would not shut a single man out of the profession if he has the intent and the determination to go into the profession. I do not care how poor he is or how few facilities he has had in the past; but, in this present day and age the opportunities for a preliminary education are at every man's door, and it is absolutely necessary, if we raise the standard of the profession in this country, that our veterinary

students shall come to the veterinary school with a more thorough

preliminary training. Another very important point that we touched upon was the fact that frequently students in veterinary colleges are not stud-There are a good many in the college who think that because they are in a veterinary college they are students. A college cap and the college vell do not make students. There are many men who have never seen the inside of an educational institution, who are profound students and thinkers, and we must get this idea out of our students, that just as soon as they enter a veterinary college that they are students. That must be done very largely by the teaching force, and the atmosphere that is carried by the institution, and particularly the atmosphere that prevails in some that just as soon as they have their veterinary degree, they have all that the world has to offer them in a professional line. We must impress upon our veterinary students and every man who teaches in a veterinary college, should impress upon his students the fact that when they have completed their college course, they are just upon the threshold of their veterinary education, and that they must go on and study and keep up with the times, with the very best that modern science and

Dr. Stewart. I see a number coming in, and I regret for them that they did not have the pleasure, the stimulus, the sense of pride which would have come to them had they heard Dr. White's paper. It was of a character that should swell the breast of every true veterinarian to think that we have such high ideals presented, that we have them to look forward to, and I trust that every man who did not hear it will take a positive resolution home with him that he will read it as soon as printed; and, not only read it, but he will undertake to digest it because it will make him a force for higher veterinary education, higher professional standards in his own community, and those with whom he

comes in contact as the years go by.

research has to offer them.

There were so many phases of the paper that one could not readily discuss each of them without having it before him and making his notes thereon. One particular feature that I would like to dwell upon, was the entrance requirement for a veterinary education. There has been before this association for years the thought that a high school training of a specific amount should be the basis for entering. High school as represented by units is a very uncertain factor. I happen to know from personal experience men who have been enrolled as veterinary students, where they completed a course in a high school, who had very little capacity for comprehension of veterinary science. I happen to know that men who never went into, or ever enjoyed any high school training, showed large aptitude for understanding the fundamental principles and the advanced art of veterinary science.

So, it seems to me that when this association shall again express itself upon the conditions for admission, that while they may with all propriety, set forth the fact that a high school training of a certain degree must be a minimum training, there should also be provision for finding out even then, whether that man has capacity for understanding the tenets, understanding the information which shall be imparted to him, have capacity enough to under-

stand veterinary medicine in its various phases.

Young men have come to veterinary colleges with a credit of one year, two years, three years, four years in high school, and yet have had little mental capacity. I believe provision should be made for ascertaining by examination of those men as to whether or not they should be allowed to enter; that there should be some equivalent arrangement as to high school conditions for admission. We place so much reliance on high school credits that we overlook just what has been stated here by the writer of the paper and by other speakers, that individuals may acquire an education without going into the high school; that education means the development of the powers of observation and the interpretation of what is seen and heard. I hope when this association shall again put its stamp of approval upon the conditions for admission, that this be taken into account.

I am very glad to hear the speaker discourse on the conditions found in the teaching staff. Men may be enrolled in the list of a faculty, and yet have very feeble teaching capacity. I am very glad to hear him speak of the importance of moral ideals. It is very well known that on some faculties there are men who do not seem to have much moral precept at all; rough and ready, coarse dollar-getting ideas only. Relations to the public, matters of citizenship, are not brought forward prominently as part of the instruction to be imparted to the students under their direction. There are many other phases of this to which I might make brief mention, but I will leave it at this, believing there are others

who see points they would like to elaborate.

<sup>—</sup>Dr. John R. Mohler, Assistant Chief, Bureau of Animal Industry, in addition to the duties of that office, will also have charge of the work of the Pathological Division of the Bureau. He will become Assistant Chief and Chief Pathologist, which latter position was made vacant by the recent resignation of Dr. Adolph Eichhorn, who left the Bureau to accept a position in the Lederle Laboratories of New York.

<sup>—</sup>A new federal meat inspection station has been established at Bristol, Virginia, and Dr. J. B. Hill, formerly of Paterson, New-Jersey, has been placed in charge.

# SHIPPING FEVER AS MET WITH IN A LARGE CITY PRACTICE\*

GEO. B. McKillip, M.D.V., Chicago, Ill.

A few years ago when shipping fever, in its ascendancy, began its campaign of devastation in the stables of our large cities it was hailed by the city veterinarians as a friend—as a thing that would fill their idle hours with profitable work and increase their clientage to a satisfying degree. There had always been more or less of it to deal with and it had been a tractable and fairly well-behaved malady, in no way a particularly disturbing factor in the veterinarians' daily life. There was nothing at that time to indicate that it was going to be other than it had been in the past, a disease of moderate severity yielding satisfactorily to prophylactic and curative measures.

But after five years of hand to hand combat with this monster in its new form we are ready to admit that instead of a friend it is now and has been for these past five years a gross enemy of the veterinary profession. Viewed in the light of past experiences we are ready to state that shipping fever with its present malignant proclivities is doing more damage to the city veterinarian's prosperity than has any other one thing in recent years. Why is this? Merely because our own acknowledgement of our helplessness in the presence of this disease weakens our standing with our clients generally, and, further, the losses sustained by horse owners as the result of the prevalence of this disease have been a most potent stimulus to the motorizing of our transfer and delivery concerns.

The margin of economy that has heretofore existed in favor of the horse drawn carrier as against the motor carrier is being wiped out by the enormous losses sustained through the mortality and morbidity from shipping fever. Motor truck salesmen, making use of this factor, are capturing our best clients and converting them into patrons of the auto mechanic.

I want to impress it upon this audience that unless some efficient steps are taken to lessen the ravages of shipping fever thousands of carrier concerns in our larger cities now using horses will

<sup>\*</sup>Presented at the meeting of the A.V.M.A., Section on Practice, August 23, 1916, Detroit, Mich.

be compelled, for economic reasons, to supplant their teams with motor trucks. It is being done now as a direct result of this disease and the movement is going to gain momentum in the months to come if conditions remain as they now are. Veterinarians in the cities are going to feel the influence of this movement primarily and chiefly, but also will its influence ramify to every town and hamlet in the United States, as the horse and mule industry suffers from want of demand, and rural veterinarians sooner or later will feel its effects.

To impress upon you the seriousness of this situation, as we view it, let me give you from among our many experiences a single representative example of what shipping fever does to a client, and, incidentally to the practitioner. One of our large concerns during the last two years purchased at the Chicago market 1300 green horses. These horses were removed to isolation stables and under as good prophylactic care as is possible at present, 963 of them (approximately 74%) contracted shipping fever. Seventy-eight of these died, a general average mortality of about 8%. It is a noticeable and a significant fact that at the beginning of the period the mortality percentage was about 5% while during the past few months the disease has been claiming approximately 10% of the cases, showing that the virulency of the infection is increasing.

While the loss from mortality was high in this case, as in all others, the most bitter complaint of the client was not of the loss by death but of the economic loss due to disability, temporary and permanent, occasioned by the morbidity.

Twenty-six patients, or about 2% of those that weathered the storm failed to recover sufficiently to be put to work and after from four and six months of care and treatment were disposed of because of permanent disabilities. These patients were ones developing intractable, chronic sequelae consisting of sesamoiditis, gonitis, laryngoplegia and laryngeal stenosis, laminitis, tendinitis, intestinal catarrh, or malnutrition, all of a chronic nature and irresponsive to treatment. Eight hundred and sixty-nine, approximately 90%, recovered sufficiently to return to work, many, however, carrying with them blemishes as mementoes of their experiences. These 869 required for full convalescence an average period of about six weeks, the period of morbidity varying from 10 days in the mild cases to three months in the severe lung cases and six to eight months in some of the protracted ones with rheumatic sequelae.

Nine hundred and sixty-three patients with temporary disability, averaging six weeks, with cost of care, feed, medicines and professional advice is a monetary item to the owner of no mean proportion. To reduce it to a simple and obvious comparison it is equivalent to the care of one patient for a period of 5778 weeks, or 111 years; or the care of 111 patients for a full year. The approximate total cost of the care of a single patient per month in Chicago is about \$10.00, making for this concern an expenditure of about \$13,320 during the past two years for care of sick horses. The loss by death and permanent disability was \$16,380, making a total of \$29,700 lost out of a \$200,000 purchase of horses. Is it strange then that these clients begin to consider the proposition of motorizing their business?

A smaller teaming concern in Chicago had 250 horses. Twenty-five green ones were purchased at the Chicago Yards and of the 25 head, twenty, or 80%, contracted shipping fever in a malignant form. Ten (or 50%) died; one was permanently disabled and nine recovered more or less completely after periods of convalescence of ten days to three months.

But that is not all that happened to this client. By some means the contagion was transmitted to the stable of old horses and it was eight months before the demon could be dislodged and the stable cleared of its presence. During the eight months 70 (28%) of these 250 aged and acclimated horses contracted the fever with the usual severe characteristics; eleven of the 70 (nearly 16%) died; the balance recovering after varying periods of time.

The shipping fever contagion at present is not nearly so virulent for mules, they being, according to our observations, relatively immune. In time to come, no doubt, the virus will adapt itself to these animals and its virulency will be increased for them as it has for horses in the past. In connection with the relative immune characteristic of the mule I might relate that the first concern mentioned above purchased with its 1300 head of horses 200 head of mules. These mules were exposed to the disease as fully as were any of the horses yet only 15 of them contracted the disease, none died and all made a complete recovery and with a less average period of disability. Not one of these patients developed that most dreaded complication, broncho-pneumonia, although all were exposed to the most severe cases of it.

The above are representative cases. I could enumerate many more as I dare say could any veterinarian practicing in Chicago.

So far as the pathological peculiarities of the disease are concerned I have nothing new to offer. The general course of the typical case, as we find it, is as follows: infection of the upper respiratory mucosa with the general signs of toxemia are the first evidences of the disease. As the case continues the inflammatory process extends down the respiratory tract involving the trachea and bronchi and in a number of cases terminating in bronchopneumonia, the most fatal complication of the malady. The mucosa of the sinuses of the head and the eyes are involved early. The gastro intestinal mucosa in the majority of cases shows involvement; mucous diarrheas are common. Articular synovial membranes, tendinous bursae, tendons, ligaments, the pododerm and muscular tissue soon show the injurious effects of the toxin by the presence of inflammatory or degenerative reactions.

Certain structures suffer more frequently and earlier in the course of the disease either from a selective action of the toxin or a greater susceptibility of the part as a result of function or structure. Thus we find among the earlier common complications sesamoiditis in 6% of cases, laminitis 3%, tendinitis of the flexors of the foot 2%, gonitis 1½%, laryngoplegia ½%, bicipital bursitis 1/4%, other similar structures less frequently. Degeneration of skeletal muscles to the point of paralysis is not unknown. Recent severe cases have occasionally exhibited paralysis of the crural quadriceps with destructive muscular changes not unlike that found in azoturia. The nervous system seems to be fairly immune to the action of the toxin. Functional interference is noted but evidences of either temporary or permanent structural changes are lacking. It is those toxic rheumatic complications that become chronic and incurable and account for the permanent disabilities among those cases that do not die.

In view of the above facts and others that are suggested by them is it not reasonable to suggest that it is time to urge the adoption of radical preventive measures as a substitute for our apparently hopeless campaign of cure and relief? As matters now stand the local veterinarian and his clientele are helpless in the matter. So long as the large markets of the city, the transportation carriers and the smaller local markets are incubators of contagion and so long as our new stock must come through them to be exposed

what chance has the final purchaser and his veterinarian to save themselves from disaster like that in those cases cited above?

The sales stables of Chicago, while attempts have been and are being made to clean them up, are but incubators in which the contagion is not only propagated and disseminated but in which the virulence of the infection is being constantly improved by the continued live animal transplantation. It seems that occasionally new strains of virus are introduced, probably from other concentration points, evidence of this being in the appearance of new and often more malignant pathogenic characteristics of the virus in the live animal cultures that are sold to our clients in the guise of draft horses.

Not all sales stables are equally infected. Many barns through the continued, intelligent vigilence exercised by their management have been made relatively free from the infection. Other barns as the result of ignorance and negligence are "rotten" and scarcely an animal that passes through them escapes a serious infection. Observation of the exhibition of ignorance and carelessness in matters of ordinary sanitation in these worst stables is sufficient to explain their relation to the prevalence of shipping fever in the barns of patrons.

In closing I want to emphasize first, that shipping fever is causing enormous losses to horse users generally but especially in the large city stables; that this loss has a serious, injurious effect alike upon the horse producing industry and upon the veterinary profession. Second, immediate relief for this situation is imperative; such relief must come through a prophylactic control of the horse markets, concentration camps, transportation concerns and the premises of the producer, as in the case of any infectious disease. I believe that the serious aspects of the disease warrant the use of radical measures of control.

<sup>—</sup>At the opening of the Armour Packing Plant at Jacksonville, Fla., an address was delivered on "Tick Eradication" by U. S. Veterinary Inspector E. M. Nighbert in which it was stated that about 40% of the originally tick infested country had been reduced and that in Florida where the work is just beginning, two counties and a portion of a third had been cleaned up.

<sup>-</sup>Dr. Emlen Wood has removed from El Paso, Tex. to Wayne, Pa.

# THE U. S. ARMY AGAINST THE ALLIES IN BUYING IT'S ANIMALS.

DAVID E. BUCKINGHAM, V.M.D., Washington, D. C.

The greatest struggle on fields of battle ever known has now been in progress over two years and still continues. France, the bloody scene of the greatest conflicts, needs more and more horses and mules and she drains American farms of 25,000 more in addition to hundreds of thousands already sent over. Italy, last to enter the fray, has been a steady buyer and asks for the best. England, with her tremendous reserve just turned loose, has taken her thousands and Greece follows with big purchases.

While we are the greatest farming people in the world with a horse census of millions, yet only the fit are taken and the old and unsound are left.

When a purchasing board of the U.S. Army was trying with difficulty to complete its quota on a contract and horse after horse was brought up for inspection, the discouraged Colonel and his veterinarian sat down to allow a great number of animals to pass into the pens from the cars ready for inspection by the Royal Italian Board next morning. They were amazed and surprised to note the many mares and the fine conformation and wonderful backs and loins and quarters of the shipment and they asked the contractors why they did not show us Americans such animals. "Oh", they replied, "you are too fussy about mares and the foreigners take all they can get." What a remark and how it shot home. Our board had travelled over 5000 miles, stopped at ranches, big stables, villages and stock yards wherever contractors had horses for us to see. We had been treated to all kinds of tricks and deceptions and even had animals substituted. looked at 25 head before we took one. Capt. Keyes, U.S.A., told me he turned down 114 head one morning. Another inspecting officer at Oklahoma City threw up his job and refused to look at any more culls.

Horses of the type the U. S. Army needs are scarce. Boards of purchase have had to spend intervals in idleness and go long distances and then see a mere handful of little, old, worn cow

<sup>\*</sup>Presented at the meeting of the A.V.M.A., Detroit Mich., Aug. 21-25, 1916.

ponies, or light carriage horses that had a value less than \$25.00 per head.

The Southern Dept., Fort Sam Houston, San Antonio, Texas, will buy about 48,000 out of the total of 67,000 authorized. It is well that we are about through for the mill must run dry without water.

Taking the great corral at Sam Houston, with its 11,000 head of three types of mules and five of horses, to judge the work of Q. M. Corps in supplying the army with animals there will be found a great percentage of first class animals but many a misfit is seen and you wonder who has blundered. I will not go into details as to how these cow-hocked, curby, calf kneed, roach or sway backed creatures carry the U. S. brand. Suffice it to say that a sentinel is needed sometimes to watch over our purchases and prevent substitutions.

The larger the number bought on one day, the easier to slip in and out with a ringer. On this account orders came late in the buying to buy but 100 head per day. There was formerly no limit but human endurance.

Now to the point of this article—Our army against the world's Away back in the Indian campaigns and the day when horses were cheap and plentiful, stallions were ridden by officers and a few mares were found on the private picket lines. Perhaps once a big general had a beautiful mare and a younger officer rode a stallion—they fell in love, the horses only, and the big general and his little officer lost their love for each other when the big general ordered that no stallion should be allowed on picket lines or to be ridden by an officer or soldier. Later on when the old general retired and the younger officer was at Washington and in command, and descriptive lists were being re-written the old sore, still tender, spurred the the new young general to leave mares entirely out in the purchase of cavalry and artillery horses. Hence today the U. S. Army with its regulars, its 1/5 increase and its militia is scantily supplied with the culls and the leavings of the European Army Boards partly because mares are barred.

Imagine my feelings as I saw beautiful 1300 to 1600 pound half-grade and three-quarter bred Percheron mares going to the Italian Army at \$50.00 per head more than we were paying for little 14.2 900 pound militia cavalry horses according to class. And these grand animals were leaving the country—they are the

very fountain and source of our future supply. We would not care so much if they paid more and took geldings—we can play a man's game there and outbid if we wish but every mare exported averages three colts less on American farms and now that so many hundreds of thousands are gone we shall need every first class brood mare to replenish our stock.

Our government should stop the exportation of mares for whatever purpose on account of economic and agricultural reasons.

And secondly, if we buy still further, to allow mares to be shown for inspection before Army Boards of Purchase for I honestly do not believe we can get enough horses of standard requirements for our army in the future unless we do buy mares.

It has been conclusively proven that mares are tougher and more resistant to wear and tear than geldings and every officer I have conferred with has agreed to this conclusion.

#### A NOTE ON THE PREPARATION AND USE OF AGGLUTININE FROM BEANS

M. Dorset and R. R. Henley, Biochemic Division, Bureau of Animal Industry, U. S. Department of Agriculture.

Recently¹ we have described a process for separating the red blood cells from defibrinated hog's blood. The principal object aimed at by this process was to secure a serum which could be heated to such a temperature as to render it safe in so far as foot-and-mouth disease infection is concerned. Repeated use of the method on defibrinated blood from hogs hyperimmunized for the preparation of anti-hog-cholera serum has only confirmed our original opinion that the method described is a practical one for separating the serum from the red blood cells. However, it has come to our notice that from a commercial standpoint it is very desirable to produce a bean extract for use in this process which will keep without spoiling for at least a week or more. The bean extract prepared according to the method described in our earlier communication undergoes fermentation very quickly unless preserved in an absolutely sterile condition. Recent modifications in

<sup>1</sup> Journal of Agricultural Research, Vol. VI, No. 9, p. 333, May 29, 1916.

the method of preparing the bean extract have served to overcome this difficulty and it therefore seems desirable to bring the new methods to the attention of all those who are interested.

IMPROVED PROCESS FOR PREPARATION OF BEAN EXTRACT. I. The beans should be of the variety commonly known as the "Wisconsin Pea Bean," and they should be of good quality and thoroughly dry. Other varieties of the White Navy Bean (*Phaseolus vulgaris*) may prove satisfactory but some appear to be distinctly lower in agglutinative power than the Wisconsin Pea Bean.

- 2. The beans should be ground quite fine so that 75 per cent of the meal will pass through a sieve having twenty meshes to the square inch.
  - 3. The bean meal is extracted as follows:

To each 20 grams of the bean meal add 100 c.c. of physiological salt solution (0.8 per cent which contains one-half per cent of crystallized phenol. This salt-phenol solution is heated to 60°C. before being added to the meal. The meal is thoroughly mixed with the extracting fluid and the flask containing the mixture is placed in a water bath, the temperature of which is to be maintained at 69° to 70°C. The flask containing the meal mixed with the extracting fluid should be kept at a temperature of from 60° to 70°C. for one-half hour.

- 4. When extraction is completed the entire contents of the flask containing the bean meal are poured into a cheese-cloth bag and the bag thoroughly pressed until all of the available fluid has been secured. This will be found quite milky in appearance.
- 5. The fluid obtained by straining, while still hot, is mixed with powdered infusorial earth (kieselguhr) in the proportion of at least 2 grams of kieselguhr for each 100 c.c. of the extract. The kieselguhr is stirred in thoroughly and mixed completely with the extract. The extract is then poured on a folded filter. The first portion of the filtrate may be somewhat cloudy, in which case this should be returned to the original container and again passed through the filter.
- 6. The clear filtrate, if it is to be used at once, should be passed through a bacteria-proof filter of infusorial earth. If it is not to be used immediately it may be set aside in an ice box and should keep for weeks in good condition. Before use it should be

passed through a filter of infusorial earth to remove any spores or bacteria which may have survived the heating.

7. If desired, the phenol may be omitted in making the above extraction and the clear filtrate which is obtained after filtration through infusorial earth may be evaporated rapidly to dryness in a blast of air and at a temperature not exceeding 60°C. The dry air, or partially dry mass which is secured, is usually, for the most part, readily soluble in physiological salt solution. It appears, however, that evaporation tends to render some parts of the extract slightly less soluble and therefore the dissolved dry material is never quite so clear as the solution from which it is obtained. In practice it would seem that, where the bean extract is not produced for sale, evaporation to dryness is undesirable, in view of the excellent keeping qualities of the phenolized extract described above.

Extracts prepared as described have been used on a number of different lots of defibrinated blood and appear to possess an agglutinating power which is quite as strong as that observed in extracts prepared in any other way. Furthermore, the presence of the small amount of phenol does not increase hemolysis and does not interfere in any way with the heating of the serum, which is always practiced after the serum has been separated from the cells. We do not, however, recommend the addition of more than 1 c.c. of an extract prepared as above, to 100 c.c. of defibrinated blood.

In our earlier paper we recommended the addition of one gram of finely powdered sodium chloride to each 100 c.c. of defibrinated blood after agglutination with bean extract has taken place. use of sodium chloride in powdered form was originally thought desirable in order to avoid any dilution of the serum. Further study of this question has shown that the salt in powdered form tends to cause a slightly greater hemolysis than that which will occur if the salt be added in the form of a saturated solution. believe the hemolysis to be undesirable and therefore now recommend that after the bean extract has been added as described above, and thoroughly mixed with the defibrinated blood, the mixture be allowed to stand for five minutes when, if agglutination is well marked, as it should be, that there be then added to each 100 c.c. of defibrinated blood, 3 c.c. of a saturated solution of sodium chloride. This is stirred in thoroughly and the mixture is then ready for centrifugalization.

The saturated solution of sodium chloride is best prepared by adding 400 grams of chemically pure sodium chloride to 1000 c.c.

of boiling distilled water. The boiling is continued for a few minutes and the solution filtered while hot. There should be a separation of salt crystals as the solution cools. This saturated salt solution should not be placed in the refrigerator but kept at room temperature.

Washington, D. C., December 14, 1916.

## SO-CALLED STAGGERS IN HORSES CAUSED BY THE INGESTION OF PTERIS AQUILINA, THE COMMON BRACKEN•

SEYMOUR HADWEN, Agassiz, B. C.

During the months of February and January of last winter many horses died with what farmers have been in the habit of calling staggers. This disease is characterized by uncertain gait, loss of equilibrium, general unthriftiness with no loss of appetite. In some small communities losses were especially heavy, in one village out of twenty-four horses owned by eleven farmers, sixteen died of staggers, four recovered and the remainder (4) did not take the disease. This is no doubt a larger percentage of mortality than is usually the case, but on making careful inquiries similar cases could be found in every country district along the banks of the Frazer, and on Vancouver Island. Dr. F. Torrance, Veterinary Director General, upon ascertaining these facts gave authority for the experiments that were conducted later, and which resulted in the proof that bracken was the cause of the disease. These experiments were described before the association and though they are not yet fully completed, it was decided that publicity should be given with a view to warning horse owners about the danger of feeding fern to their animals during the coming winter. Remedies were forthcoming and seeing that the cause of the disease has been definitely traced to poisoning by bracken, it is hoped that the losses which occurred last winter will be obviated. The facts presented to the society are briefly as follows:

<sup>\*</sup>At a meeting of the B. C. Veterinary Association held in the Hotel Vancouver on Dec. 6th, a preliminary communication was made to the members of the association by Drs. Hadwen and Bruce of the Veterinary Research Laboratory, Agassiz, on the results of their researches in regard to a disease which occurs among horses in the coast region of B. C.

EXPERIMENT No. 1. Two healthy horses were confined in a One horse was fed on hay from which all the fern had been picked, the other animal received the ferns with a proportion of hay; no other food was given to either animal and they were not allowed any exercise. The experiment began on April 1st, and on April 29th the horse which was receiving the ferny hay showed slight signs of intoxication. This symptom (staggers) became worse until on May 1st the animal had practically lost its sense of equilibrium and would nearly fall when made to get over in the stall. On May 2nd it fell down and was unable to regain its feet. On the fourth it had become so ill it was killed to end its sufferings. The other horse which had received no fern remained perfectly A similar experiment was conducted later on with the same The horse to which the ferny hay was fed developed the disease and was destroyed, and the control horse remained perfeetly well. A third experiment has just been completed. In this case ferny hay purchased locally at Agassiz was fed just as received, resulting in the death of the horse on the thirty-sixth day of the experiment. This animal had previously served as a control to another horse that died, clearly demonstrating that it was the bracken which was the cause of the trouble, as no ill effects were noticed in this animal when fed on the hay out of which the ferns had been picked. Further experiments are under way and facts are being ascertained as to the exact toxin or poison which is probably present in bracken. The disease as it occurs on the average farm is brought about in the following manner:-fern is found in a great amount of the hay grown in the lower parts of the Province, especially so on newly cleared farms and it was on such farms that the disease was most common last winter. During the severe weather we experienced in the early part of the year, animals were confined indoor for a long period, in some districts hay was short and none too liberal an allowance given to each animal, the result being that horses that would otherwise have left the fern in their mangers were forced to eat it. (As a general rule horses do not eat bracken unless forced to, with the exception of greedy animals that eat their bedding, which often consists of the fern they have rejected out of the hay). These horses in nearly all cases received but little else than hay in the shape of food; where animals were given plenty of hay and roots, with occasional feeds of bran and oats, no troubles of this nature occurred, and in the city stables no cases were reported. It is evident from this that a small amount of

bracken may be eaten with impunity, but that large amounts coupled with unhygienic surroundings and lack of variety in diet bring on the trouble.

Careful weighing tests have been made and it was found that what is usually called very ferny hay contains in the neighborhood of thirty per cent bracken. The amount required to bring on staggers was found to be about two hundred pounds, fed at the rate of five to six pounds a day over a period of some thirty days. Though the cause of this disease had not been definitely established heretofore, veterinarians have been quite successful in treating the malady if they were called early enough, and when at all possible farmers are strongly advised to summon such professional aid as is available. Where this is not possible the animals must be treated by the farmer himself. The lecturers testified to valuable information which had been given to them by Drs. Tolmie and Darby. especially as regards statistics and treatment of the affection. Probably the safest form of treatment for a farmer who is obliged to treat his own animals, is first of all to remove the ferny hay and to substitute good clean hay. A dose of raw linseed oil should next be administered, taking especial care that none of the liquid falls into the lungs. Warm bran mashes and roots should be given. The horse should be well blanketed and kept as quiet as possible. owing to its nervous excitability. Warmth is a great aid in combating the affection whilst a cold drafty stable tends to lower the vitality.

SUMMARY. It has been proved experimentally that the socalled staggers of horses is caused by their eating the common bracken; the disease should then be called *bracken poisoning*.

The disease has been reproduced by feeding bracken in both winter and summer, proving that cold is not a necessary factor in the production of this disease. However, a cold drafty stable lowers the vitality and farmers are advised to take special care of their horses during the severe weather; to keep them warm, well supplied with roots and to give them occasional bran mashes.

Horses should not be left tied up for long periods without exercise, as this tends to constipate the animals.

Above all fern should be eliminated from the hay they are given and also from their bedding.

<sup>(</sup>A Dominion bulletin describing this disease will be issued upon the completion of the experiments.)

#### THE PHYSICAL EXAMINATION OF DAIRY COWS.

J. L. WILDER, Akron, N. Y.

I have not selected this subject with any thought of advancing some new or better method of examining cows for dairy production. My object is to try to arouse a discussion here that may lead to a better understanding as to what is a good, practical physical examination. I mean an examination that will eliminate those cows that are a menace to public health. I mean an examination that is a credit to the veterinary profession instead of being a joke. An examination that will cause the dairyman to feel a sense of satisfaction regarding the health of his herd, instead of having a feeling of being imposed upon by the health department and the veterinary profession.

When called by the dairyman to examine his cows, and I believe no veterinarian who is true to his profession, will go to a stable until called, I do not believe in making false motions simply to cause an impression but go about the examination in a practical, professional manner.

There can be no rule as to what to do first or what last, but I think each man should decide on a system of his own and then adhere to that as nearly as possible.

I am going to describe as nearly as I can my own mode of procedure, not because I think it is better than any other, but it is the easiest way I can explain what I consider a fair and practical physical examination.

First, I auscultate the lungs carefully and percuss wherever auscultation reveals any sounds not entirely satisfactory. Second, I manipulate the lymphatic glands in the pectoral region and those of the flank, and I regard with suspicion those that are hard and knotty or sensitive. Third, I examine the udder, drawing a little milk from each teat into my hand. Fourth, I examine the head for actinomycosis and manipulate the submaxillary and parotid glands. Following this I look for vaginal discharges or any suppurating wounds on the body.

Possibly this examination, that I have described, may not fully satisfy the health authorities of the State Health Department

<sup>\*</sup>Read at the meeting of the Western New York Veterinary Medical Association, Buffalo, N. Y., December 1916.

but I think an examination similar to that described will eliminate a large percentage of the cows that are dangerous to the public health, if their raw products were used.

My experience of the past two years, although rather limited, has convinced me that an examination of this kind, made by a veterinarian called by the owner of the herd to make the examination inspires respect for that veterinarian and his profession. It does more than that. In a greater or less degree it removes the feeling that the milk producers are being oppressed unjustly by the health department.

On the other hand the veterinarian who goes into a dairy section, and goes from farm to farm asking the privilege of examining the cows, explaining the advantage of having it done then, because he is in that locality and can do it cheaper than it can be done at any other time, is putting veterinary services on the bargain counter. Such methods are not only unethical but are professionally dishonorable, they brand the veterinarian as a grafter and aid in widening the gulf between the health department and the milk producer.

No better opportunity has been presented to the veterinarian, to uphold and advance the dignity of his profession in the rural districts, than that part of the present sanitary code which provides for a physical examination of dairy cows by approved veterinarians. No work entrusted to veterinarians has been performed in a manner to cause so much dissatisfaction and criticism among cattle owners as the present health law.

In the last twenty years there has been a great step forward in the veterinary profession. This has been brought about by two great factors. First: the improved facilities for veterinary study. Second: the growing respect for and confidence in the veterinarian and his profession by the stock owners, the business men and the men of other professions.

The provision of the present sanitary code of the State Health Department, requiring veterinary inspection of cattle producing milk to be sold to the public, is one of the proofs of the growing confidence in our profession. If we make so light of the physical examination, and charge so small a fee that the dairyman feels it is a fake, the consuming public will soon share that belief.

The veterinarian who walks through a stable, makes a few complimentary remarks to the owner and fills out a health certificate, accepting a small fee, which was not earned and hurries on to graft a little on the next neighbor is sounding the death knell of the veterinary public service.

Are we going to turn the tide of veterinary advancement backward by petty jealousies; by professional acts and by an unhealthy greed for a few dollars?

Can we not take some action here to-night that will put the Western New York Veterinary Medical Society on record as being opposed to these unethical and unprofessional methods? Let us do our part to uphold the dignity and maintain the honor and respect our chosen profession deserves.

- —According to State Veterinarian C. J. Marshall of Pennsylvania, the number of horses, mules, vehicles, etc., exported on account of the European war is as follows: "From Sept. 1, 1914 to June 1, 1916, this country has shipped to the belligerent nations 611,700 horses valued at \$134,943,456; 167,387 mules valued at \$34,198,955; wagons valued at \$2,461,611; harnesses and saddles valued at \$25,739,015, a grand total of \$197,343,037. During the same time the value of motor drawn vehicles exported amounted to \$143,122,124. There was a balance in favor of the horse to the extent of more than \$50,000,000." Most of the horses exported are of the kind that would be indispensable to the United States in case of war. As a measure of preparedness, Dr. Marshall holds that the United States should encourage horse breeding in every possible way.
- —Dr. A. F. Staub has been transferred from Buffalo, New York, to Dayton Ohio, and placed in charge of the meat inspection work of the Bureau of animal Industry, vice Dr. Frank L. Gardner, who has resigned to accept a position at a higher salary outside the government service.
- —Dr. I. B. Paxton, of Sacramento, California, has removed from that city, and is now an inspector on the tick eradication force of the Bureau of Animal Industry with headquarters at Fort Worth, Texas.
- —Dr. Howard Baker, for many years in the employ of the Bureau of Animal Industry as veterinary inspector, has tendered his resignation.

#### FOWL CHOLERA AND OTHER HEMORRHAGIC SEP-TICEMIA IMMUNIZATION EXPERIMENTS\*

BERNARD GALLAGHER, Washington, D. C.

Introduction. In all but one of the experiments here presented, an attempt was made to produce immunity to hemorrhagic septicemia by employing as the immunizing agent living organisms of a strain of fowl cholera bacilli non-virulent for fowls. In the one case excepted a mixture of killed organisms of both virulent and non-virulent strains of fowl cholera bacilli was used. Fowls, rabbits, guinea pigs and white rats were selected for test animals and virulent strains of Bacillus avisepticus, B. bovisepticus, B. suisepticus and B. ovisepticus were used for the purpose of determining the degree of resistance acquired.

In considering the practical importance of tests of immunity conducted along artificial lines, which is the usual method employed, it must be borne in mind that the actual value of the resistance produced is problematical. There is a wide difference between natural and artificial infection, and apparently there is an unknown factor at work in natural fowl cholera outbreaks, since such outbreaks, if due to the fowl cholera bacillus alone, would be easily produced by feeding a virulent culture to susceptible birds. We have failed to produce any symptoms of cholera by feeding several highly virulent strains of fowl cholera organisms. Also susceptible fowls have been placed with artificially infected birds exhibiting severe diarrhea without showing any indication of having contracted the disease. It is assumed of course that fowl cholera is spread through a flock by means of feed and water infected by the excretions of diseased birds. No opportunity has been presented the writer to attempt immunization against a natural outbreak of fowl cholera. The degree to which artificial immunization with fowl cholera organisms would protect against a natural infection must remain unanswered until opportunity is had to make exposure tests.

The degree of immunity conferred against artificial infection in the case of fowl cholera appears to be governed by the amount of infective culture used. The question arises as to when an animal should be considered immune; that is, what amount of virulent

<sup>\*</sup>From the Pathological Division of the Bureau of Animal Industry.

material would constitute a fair test when injected in a given manner. Under natural conditions, we may assume that the amount of infectious material which the animal receives is comparatively small, and that in giving amounts of culture in dilutions lower than 0.01 or 0.001 of a c.c. by hypodermic injection, we are subjecting the animal to greater exposure than would occur under ordinary conditions.

FOWL CHOLERA. EXPERIMENT WITH KILLED ORGANISMS. first attempt at immunization against fowl cholera was made with killed cultures of five strains of the fowl cholera organism kindly furnished by Dr. Hadley of the Rhode Island Experiment Station. Preliminary inoculation tests on fowls, rabbits and guinea pigs showed that the strains numbered 16 and 52 were non-virulent in doses of 1 c.c. of a 48 hour bouillon culture, while strains numbered 48, 83 and 91 proved virulent. All were sub-cultured upon plain agar media, the several strains being grown separately and incubated at 37°C, for 48 hours. The growths were then washed off with sterile normal salt solution, emulsified together, standardized to 2,000,000,000 organisms per e.c. and the emulsion divided into three lots for the purpose of developing three types of fowl chol-The first lot was heated at 60°C. for one hour and era bacterin. designated Bacterin A. The second lot received sufficient carbolic acid to make a 0.5 per cent solution and was designated Bacterin B. The third lot was diluted with an equal amount of ether, and after an exposure of one hour, the ether was evaporated over a water bath at a temperature of 45°C, and the product designated Bacterin C. After a lapse of 24 hours, cultural tests of the above three bacterins demonstrated that the organisms had been killed in each case by the method used. The purpose of the above procedure was to determine whether the method of killing the organisms had any influence on their immunizing properties.

Twelve fowls were selected from a flock, in which no case of fowl cholera had appeared, and were divided into three groups. Three in each group received 0.2 c.c. of their respective bacterin subcutaneously, while the fourth was not injected and was held as a control. No reaction to the injection was apparent in any of the fowls. After a period of nine days, two of the previously injected fowls in each group received an injection of 0.5 c.c. of their respective bacterin. The object of withholding the injection from

the third bird in each group, which had received one injection, was to determine whether increased resistance was conferred by successive injections. As was the case before, no apparent reactions followed the inoculation. Thirteen days were allowed to elapse after the second injection, before a test was made of the degree of immunity derived from the vaccination. All 12 fowls were then inoculated subcutaneously with 0.000,000,001 c.c. each of a 48 hour bouillon culture of the highly virulent fowl cholera strain 48. A rabbit also received the same amount and served as an additional control.

By comparing the results of the inoculation of strain 48, as shown in the following table, it will be readily apparent that no appreciable immunity had been acquired as a consequence of vaccination. With one exception, all fowls died within a period of 60 hours. In the case of fowl 8 which had received only one injection of Bacterin A, and which survived for 120 hours after inoculation with strain 48, it is quite probable that this fowl possessed a slight natural resistance, since it was observed in later experiments that certain non-immune fowls resisted comparatively large amounts of virulent fowl cholera organisms.

TABLE I.
RESULTS OF IMMUNIZATION WITH KILLED FOWL CHOLERA BACILLI

	FOWL,	FIRST INJECT.	INTER-	SECOND INJECT.	Inter	VAL	FOWL CHOI 48 HOUR B TURE SUB	OUILI	ON	CUL
							AMOUNT	Result	INTE	RVAL
,	6	0.2 c.c.	9 days	0.5 c.c.	(a) 13	days	0.000,000,001	Died	44	hours
Bacterin					1		c. c.	ľ	1	
	7	0.2 e.c.	9 days	0.5 e.c.	(a) 13	days		46	44	hours
A	8	0.2 c.c.			22	days	,,	66	120	hours
	9	Control					"	66	28	hours
	10	0.2 e.c.	9 days	0.5 c.c.	(a) 13	days	"	66	60	hours
Bacterin	11	0.2 c.c.	9 days	0.5 c.c.	(a) 13	day	"	66		hours
В	12	0.2 c.c.			22	days	"	44	44	hours
	13	Control					"	44	48	hours
	14	0.2 c.c.	9 days	0.5 e.c.	(a) 13	days	"	6.6	60	hours
Bacterin	15	0.2 c.c.	9 days	0.5 c.c.	(a) 13	days	"	66	28	hours
C	16	0.2 c.c.				days	""	44		hours
	17	Control	. 1				"	44	60	hours
Rabbit	3	Control		i			"	66	36	hours

<sup>(</sup>a) Represents interval after second injection of bacterin.

Test of Immunization by Live Organisms. Two fowls which 30 days previously had resisted an intra-abdominal injection of 2 c.c. of a bouillon culture of Fowl Cholera strains 16 and 52 respectively were given an injection of 0.000,000,001 c.c. each of a 48 hour bouillon culture of strain 48 subcutaneously at the same time as the above fowls. Fowl 5 previously injected with strain 16 died in 87 hours, while fowl 4 which had previously received strain 52 showed no apparent symptoms and survived the inoculation.

The result of this experiment tended to prove, as shown by Hadley<sup>1</sup>, that inoculation with live organisms of strain 52 conferred an immunity against a subsequent exposure to fowl cholera strain 48. However, an opportunity to test fowl 4 with a larger dose of strain 48 was prevented, owing to the loss of the subject during our extended absence from the laboratory.

TABLE II.
RESULTS OF IMMUNIZATION WITH LIVING FOWL CHOLERA BACILLI

Fowl No.	(a) Fowl Cholera 16	(a) Fowi Cholera 52	Method	Result	Interval	(a) Fowl Cholera 48	Method	Result	Interval
4		2 c.c.	Intra- abd.	No. reaction	30 day	0.000,000,001	sub-	Lived	
5	2 c.c.		6.4	4.4	6.6	6.6	4.4	Died	85 hours
9 Control						**	"	44	28 hours
13 Control			4			4.4	6.6	44	48 hours
17 Control						"	"	**	60 hours
Rabbit 3 Control			and the same of th			4.6	4.6	4.4	36 hours

<sup>(</sup>a) 48 hour bouillon culture.

EXPERIMENTS WITH LIVE AVIRULENT ORGANISMS. These experiments were based upon the findings of Hadley, relative to the immunizing powers of live cultures of strain 52 in rabbits and for this purpose a series of fowls, rabbits, guinea pigs, rats and mice were inoculated with living organisms from this strain. It was observed that no apparent reaction followed the injections, with the exception of a slight induration at the point of inoculation in the rabbits and guinea pigs. Since Hadley laid some stress on the

<sup>1.</sup> Studies on Fowl Cholera. Bulletins of Rhode Island Agr. Exp. Sta.

presence of necrosis and sloughing at the point of inoculation, it was considered possible that the strain had become changed in its character or even replaced by some organism of a similar type during passage in our laboratory, and it was thought advisable to secure a new culture of the strain from Dr. Hadley. It may be stated here, however, that the original culture was later tested for its purity and was found to respond properly to the various media tests, and also its purity was proved by the complement fixation test against known hemorrhagic septicemia serum.

TEST OF IMMUNITY CONFERRED BY FIRST INJECTION OF STRAIN 52. When a period of 26 days had elapsed since the injection of strain 52, a test was made of the resistance acquired to strain 48. Two fowls, two rabbits and two guinea pigs and their controls were inoculated. The fowls received 0.002 c.c. each of a 48 hour bouillon culture, while the rabbits and guinea pigs received 0.001 e.c. each. In the case of the fowls and rabbits, the injections were given subcutaneously. The guinea pigs, because of their natural resistance to subcutaneous injections of hemorrhagic septicemia organisms, were given intra-abdominal inoculations. The following table shows that one fowl resisted the organism, while the other died in 72 hours. However, the unimmunized control also lived, proving that a certain degree of natural resistance may be present, and also that strain 48 was not as virulent for fowls as 14 months previously. All rabbits and guinea pigs were dead within 15 hours after inoculation. It will be noted that one guinea pig and one rabbit had received the original 52 strain intra-abdominally.

TABLE III.

RESULTS OF TESTS OF IMMUNITY CONFERRED BY FIRST INJECTION OF STRAIN 52

Species	E		Fowl Cholera 52 (a)	(a)				Fowl Cholera 48 (a	era 48 (a)	
	No.	Amount	Method	Result	Interval	al Amount	unt	Method	Result	Interval
Fowl	19	1 e.e.	1 c.c. Subcutaneously No reac-	No reae.	26 days	0		Subcutan-	Sick	
Fowl	55	*	Subeutaneously	uoti	26 days	y, sy		,,	Died	72 hours
Fowl	36 Control					;		3	Sick	
Rabbit	5	;	Subcutaneously	Slight indura- tion	25 days	ys 0.001	1.3	:	Died	15 hours
Rabbit	21	,	Intra-abdomin	No Reac-	25 days	s,		,	,,	15 hours
Rabbit	24 Control					3		"	;	15 hours
Guinea Pig.	က	3	Subcutaneously	Slight indura- tion	25 days	ys s		Intra-ab- dominally	:	15 hours
Guinea	19	: .	Intra-abdomin ally	No Reac tion	25 days	ys .		3	3.	15 hours
Pig	Control					3,		"	"	15 hours

(a) 48 hour bouillon culture.

TABLE IV.
RESULTS OF SECOND INJECTION WITH STRAIN 52

	_			-	FOWL CH	OLERA 5	2, 48 HO	UR	BO	FOWL CHOLERA 52, 48 HOUR BOUILLON CULTURE	ULTURE
SPECIES	Recard No.			FIR	FIRST INJECTION	NOI	SEC	INC	INI C	SECOND INJECTION	
		Date	Amount	nt	Method	Result	Date	Am	Amount	Method	Result
Fowl	56	11-5-10	1 c.c.	-	Subcutan-	No re-	12-6-15	1	1 e.e.	Subcutan-	Died 2-9-16
Fowl	37	11-5-15	L5 c.c.	5	eously Intra-ab-	No re-	12-6-15			eously	Sarcoma Died 12-9-15. Cheesv ex-
Rabbit	1-	11-6-15			dominally Subcutan-	action Sl. in-	12-6-15	-	9.9	Subcutan-	8
Rabbit	14	11-6-15	-		eously Subcutan-	duration Sl. in-	12-6-15	-	9.9		3 days Died
Rabbit	16	11-6-15	-	e.e.	eously Subcutan-	duration Sl. in-	12-6-15		e.e.		5 days Died
Rabbit	6.	11-6-15	-	e.e.	eously Subcutan-	duration Sl. in-	12-6-15	-	9.0	eously Subcutan-	9 days Died 2-3-16
Rabbit	10	11-6-15	-	e.e.	eously Subcutan-	7	12-6-15		6.6	eously Subcutan-	Impacted Colon Died 2-1-16
Guinea Pig		11-6-15	-	e.e.	eously Intra-ab-	۵.,	12-6-15		e.e.	eously Intra-ab-	Died
		11-6-15	-	00	dominally Subentan-		19-6-15			dominally Subcutan-	
		11-6-15	-		eously Subcutan-		12-6-15			eously Subcutan-	
		11-6-15	-	6.6.	eously Subcutan-		12-6-15			eously Subcutan-	3 days Died
	-	11-6-15	-	e.e.	eously Subcutan-		12-6-15			eously Subcutan-	4 days
	11	11-6-15	-	e.e.	eously Subcutan-	-	12-6-15	1	e.e.	eously Subcutan-	5 days Died
		11-6-15	1	e.e.	eously Subcutan-		12-6-15	7		eously Subcutan-	
		11-6-15	-		eously Subcutan-		12-6-15		1 e.e.	eously Subcutan-	9½ days Died 1-8-16
Rabbit	25				eously	tion		10	10 c.c.	eously Intra-ab-	Died 18 hours
	_			_						dominally	

As a result of the above experiment, it was deemed advisable to reinoculate with the fresh culture of 52 received from Dr. Hadley, and accordingly 12 fowls, 15 rabbits and 15 guinea pigs received a second subcutaneous injection of 1 c.c. each of a 48 hour bouillon culture of strain 52. One rabbit and one guinea pig received 1 c.c. each intra-abdominally and one rabbit received 10 c.c. intra-abdominally. Seven guinea pigs and four rabbits died as a direct result of this inoculation. Extensive necrosis and sloughing were present at the point of subcutaneous inoculation in all rabbits and guinea pigs, but was more marked in the latter. No apparent reaction took place in the fowls. Table IV shows the results following the second injection of strain 52.

The severe reaction in rabbits and guinea pigs to the second culture of 52 lent the impression that our original laboratory culture had changed its potency during the continued passage on plain agar without an occasional passage through a young rabbit, a procedure which Hadley had observed affected his cultures adversely.

RESISTANCE OF FOWLS RECEIVING A SECOND INJECTION OF FOWL CHOLERA STRAIN 52 TO FOWL CHOLERA STRAIN 48. After allowing an interval of 38 days to elapse after the second injection of Fowl Cholera strain 52, experiments were begun to determine the degree of resistance acquired to the virulent Fowl Cholera strain 48. Comparatively large amounts were administered to the first series of animals, the intention being to decrease the dose for each successive series until a point was reached at which an active immunity appeared to be present.

The following table shows the results of the injection of a 48 hour bouillon culture of Fowl Cholera strain 48.

TABLE V.
RESISTANCE OF FOWLS TO FOWL CHOLERA STRAIN 48

R	ECORD		Strain No. 52. Illon culture.	Int	terval	Fowl Cl		ain No. n cultur	48, 48 hour e
	NO.	1st inj. 1 cc. 48 hr. bouillon culture subcut.	2nd inj. 1cc. 48 hr. bouillon culture subcut,	1111	orvar	Date	Amount	Result	- Interval
	-20	Nov. 5, 1915	Dec. 6, 1915	38	Days	1-13-16	1.5 c.c.	Died	22 Hours
	21	Nov. 5, 1915	Dec. 6, 1915	38	Days	1-13-16	1 c.c.	Died	36 Hours
38	Control		,			1-13-16	1 e.c.	Died	36 Hours
	23	Nov. 5, 1915	Dec. 6, 1915	59	Days	2- 3-16	.1 e.c.	Died	35 Hours
	24	Nov. 5, 1915	Dec. 6, 1915	59	Days	2- 3-16	.01 c.c.	Died	22 Hours
	25	Nov. 5, 1915	Dec. 6, 1915	59	Days	2- 3-16	.002 c.c.	Died	60 Hours
39	Control	1	,			2- 3-16	.002 e.e.	Died	61/2 Days
	27	Nov. 5, 1915	Dec. 6, 1915	65	Days	2- 9-16	.001 c.c.	Died	60 Hours
	28	Nov. 5, 1915	Dec. 6, 1915	65	Days.	2- 9-16	.001 e.e.	Lived	
	29	Nov. 5, 1915	Dec. 6, 1915	65	Days	2- 9-16	.002 e.e.	Lived	
	30	Nov. 5, 1915	Dec. 6, 1915	65	Days	2- 9-16	.01 c.c.	Died	36 Hours
	31	Nov. 5, 1915	Dec. 6, 1915	65	Days	2- 9-16	.01 e.e.	Lived	
	32	Nov. 5, 1915	Dec. 6, 1915	65	Days	2- 9-16	.01 c.c.	Lived	
	33	Nov. 5, 1915	,	96	Days	2- 9-16	.002 e.c.	Died	60 Hours
	34	Nov. 5, 1915		96	Days	2- 9-16	.001 e.e.	Died	91/2 Days
41	Control					2- 9-16	.002 e.c.	Died	7 Days
42	Control					2- 9-16	.001 c.c.	Died	3½ Days

The above table shows that of the eleven fowls receiving two injections of 52, seven died as a result of subcutaneous injections of a 48 hour bouillon culture of strain 48 in amounts of from 1.5 to 0.001 c.c. while four fowls survived injections ranging between 0.01 and 0.001 c.c. Fowls 33 and 34 which had received only one injection of 52 succumbed to doses of 0.002 and 0.001 c.c. respectively.

It will be noted that the susceptible controls showed considerable resistance as compared to a number of the treated fowls, and in this connection it may be mentioned that on November 18, 1915, susceptible fowl 35 resisted 0.01 c.c. of a 48 hour bouillon culture, although fairly severe symptoms of cholera were apparent. On February 9, 1916, this bird received 3 c.c. of a 48 hour bouillon culture of strain 48 and died in 19 hours, (See Table VI) the previous injection of 48 failing to immunize against itself. A fowl which was placed in a cage with the above while the latter was sick from first injection succumbed to 0.002 c.c. of strain 48 in a period of 22 hours. This fowl showed no indication of having contracted cholera through exposure. While a certain amount of resistance is in evidence in fowls receiving dilutions above 0.01 c.c. still too much weight cannot be attached to this fact, since susceptible controls also show a degree of resistance to similar amounts.

RESISTANCE OF APPARENTLY IMMUNE FOWLS TO LARGER AMOUNTS OF FOWL CHOLERA STRAIN 48. Fowls which had shown resistance to varying amounts of strain 48 were later given one or even two additional doses of lower dilutions to determine the degree of immunity present. Results are shown in the following table.

SHOWING FURTHER EXPERIMENTS ON FOWLS WHICH RESISTED ONE OR MORE INJECTIONS OF FOWL CHOLERA 48 TABLE VI.

Record	Date of 1st in-	1st in-		injection	Second injection of 48, 48 hour bouillon culture	· bouillon	T	hird injec	Third injection of 48, 48 hour bouillon culture	bouillon culture
No.	jection	of 48	_	Amount	Date Amount Method	Result	Date	Date Amount	Method	Result
35	Nov. 1	18, 1915	2-9 -16	3 e.c.	2-9 -16 3 e.e. Subcutaneous Died 19 hrs.	Died 19 hrs.		The same of the sa		
*41				0.002 c.c.	0.002 c.c.   Subcutaneous   Died 7 days	Died 7 days				
19					*					Died 1-3-16 Anemia
36			_	1.5 e.e.	1-13-16 1.5 e.e. Subcutaneous Lived	Lived	2-9-16	2 c.c.	2-9-16 2 e.e. Intra-abdominally Died 15 hours	Died 15 hours
*38				1 e.c.	1 e.e. Subcutaneous Died 36 hrs.	Died 36 hrs.				
*42								0.001 c.c.	Subcutaneous	Died 31%, days
28		9, 1916								Died 2-29-16 Aspergillosis
53				1 e.e.	Subcutaneous Lived	Lived				Died 4-6-16 Anemia
31			3-15-16	1 c.c.	Subcutaneous Lived	Lived	8-1-16 1 e.e.	1 c.c.	Subeutaneous	Lived
32				1 c.c.	Subcutaneous Died 64 hrs.	Died 64 hrs.				
*43				1 c.c.	Subcutaneous Died 24 hrs.	Died 24 hre.				
*44	-	-						0.2 c.e.	Subcutaneous	Lived

\*Control

It will be noted that fowls 19 and 28 died of other causes before a second injection could be given.

Fowls 35 and 36 had not received an injection of strain 52, but had shown a natural resistance to strain 48, the former succumbed to 3 c.c. of 48 subcutaneously on second injection, while the latter failed to resist 2 c.c. given intra-abdominally on the third injection.

Of the three immunized fowls which received a second injection, 29, 31 and 32, the latter died from a dose of 1 c.c. of strain 48 subcutaneously, while the former two survived. Fowl 29 died 22 days later of anemia. On Aug. 1, 1916, fowl 31 was again inoculated with strain 48, 1 c.c. being given subcutaneously. No symptoms were observed, and apparently complete immunity was present. However, fowl 44 a susceptible control resisted 0.2 c.c. of strain 48 although it became sick and passed greenish droppings. The pathogenicity of the culture for fowls had evidently become greatly lessened since several days previously a young chicken had resisted 0.01 c.c. of a 48 hour culture of strain 48 given subcutaneously.

RESISTANCE OF RABBITS RECEIVING A SECOND INJECTION OF FOWL CHOLERA 52 TO FOWL CHOLERA 48. In this experiment ten immunized rabbits were given amounts of a 48 hour bouillon culture of strain 48, ranging from 1 c.c. to 0.0001 c.c. subcutaneously.

The following table shows that with the exception of rabbit 8, which resisted 1 c.c. of strain 48, death was produced by dilutions of 0.01 c.c. or lower. In higher dilutions the resistance was apparently complete since control rabbits were susceptible to corresponding amounts of the virulent culture.

RESISTANCE OF APPARENTLY IMMUNE RABBITS TO LARGER AMOUNTS OF FOWL CHOLERA STRAIN 48. In this experiment rabbit 8 which had resisted 1 c.c. of strain 48 was given 2 c.c. of the same strain subcutaneously. Death resulted in 4½ days, while the control died in 35 hours as a result of an injection of 0.001 c.c. of the same culture.

The other four immunized rabbits received 1 c.c. of strain 48 subcutaneously. Three died in 64 hours or less, while one lived, although it remained badly emaciated for several weeks. On Aug. 1, 1916 this rabbit was given a third injection of strain 48, 1 c.c. being given subcutaneously. No bad results followed. The control received 0.2 c.c. of strain 48 and died in less than 18 hours. Rabbit 19 had acquired an immunity to 48, which had persisted for 4½ months and was evidently complete for a comparatively large amount of culture.

TABLE VII.

SHOWING RESISTANCE OF IMMUNIZED RABBITS TO FOWL CHOLERA STRAIN 48

Record	Fowl Clast inje	Fowl Cholera 52, 1st injection 1 cc.		Fowl Cholera 52, 2nd injection 1cc. 48 hour bouillon	In ter-	Fowl C	Fowl Cholera 48, 48 hour bouillon culture subcutaneously	our bouill	on eulture	
No.	eulture neously	subcuta-	culture neously.	culture subcuta- neously.	val	Date	Amount	Result	Interval	1
00	Nov. 6.	1915	Dec.		38 days	1	1 c.c.	Lived		1
9	Nov. 6, 1915	1915	Dec.	Dec. 6, 1915	38 days	* .	0.5 c.c.	Died	15 Hours	
*27				٠		1-13-16	0.5 e.e.	Died	15 Hours	
11	Nov. 6.		Dec.	6, 1915	59 days	2	0.1 e.e.	Died	60 Hours	
12	Nov. 6.	. 1915	Dec.	6, 1915	59 days	2 - 3 - 16	0.01 e.e.	Died	60 Hours	
13	Nov. 6.		Dec.	6, 1915	59 days	2-3-16	0.001 e.e.	Lived		
*28						2	0.001 e.e.	Died	35 Hours	
15	Nov. 6.		Dec.		65 days	d	0.01 e.e.	Died	91/2 Days	
17	Nov. 6.	1915	Dec.		65 days	2 - 9 - 16	0.005 e.e.	Lived		
18	Nov. 6.		Dec.	6, 1915	65 days	2 - 9 - 16	0.001 c.c.	Lived		
19	Nov. 6.		Dec.		65 days	2	0.001 e.e.	Lived		
20	Nov. 6		Dec.		65 days	2	0.0001 e.e.	Lived		
. 53						2 - 9 - 16	0.0001 e.e.	Died	36 Hours	
*22	11-6-15	11-6-15 Intra-abd. 12-6-15 Intra-abd 59 days	12-6-15	Intra-abd	59 days	2	0.01 e.e.	Died	15 Hours	
26	12-9-15	" 10 c.c.			56 days	9	0.1 e.e.	Died	15 Hours	
*28						of	0.001 e.e.	Died	35 Hours	

\*Control

TABLE VIII.

SHOWING FURTHER EXPERIMENTS ON RABBITS WHICH RESISTED ONE OR MORE INJECTIONS OF FOWL CHOLERA 48

beoord	Date of First	Second	Injection of	Second Injection of 48, 48 hour bouillon culture		Third Inje	etion of 4	8, 48 hr. l	Third Injection of 48, 48 hr. bouillon culture
No.	injection of 48	Date	Amount	Method	Result	Date	Date   Amount   Method	Method	Result
00	13, 1916	2- 3-16	2 c.c.	2-3-16   2 c.c.   Subcutaneously Died 1/2 Days	Died 1/2 Days		-		
82	Feb. 3, 1916		0.001 e.e.	Subcutaneously	Died 35 Hours				
13	3, 1916	3-15-16	1 e.e.	Subcutaneously	Subcutaneously Died 64 Hours				
17	9, 1916	3-15-16	1 e.e.	Subcutaneously	Subcutaneously Died 17 Hours				
18	Feb. 9, 1916				Died 2-27-16				
19	Feb. 9, 1916		1 e.e.	Subcutaneously Lived	Lived	8-1-16 1 e.e.	1 e.e.	Subcut. Lived	Lived
20	6	3-15-16 1 e.e.	1 c.e.	Subcutaneously	Subcutaneously Died 40 Hours				
30	Mar. 15, 1916		0.01 e.e.	Subcutaneously	Subcutaneously Died 17 Hours				
31	_						0.2 6.6	Subout	0.2 c.c. Subent. Died 18 Hours

\*Control

RESISTANCE OF GUINEA PIGS RECEIVING TWO INJECTIONS OF FOWL CHOLERA STRAIN 52 TO FOWL CHOLERA STRAIN 48. Eight immunized guinea pigs were used in this series. Animals 7 and 6 received 1 c.c. and 0.5 c.c. respectively. The former showed resistance, while the latter receiving a lesser amount, died in 36 hours. However, the control animal receiving a similar amount lived, thus showing the natural resistance of guinea pigs to subcutaneous inoculation of hemorrhagic septicemia organisms. The remainder of the experiments on guinea pigs were conducted with intra-abdominal injections, amounts of 48 ranging from 0.01 c.c. to 0.000,000,1 c.c. being given.

The following table IX shows that animals receiving 0.01 c.c. and 0.001 c.c. died in 22 hours, while those receiving 0.0001 c.c. or less resisted the inoculation. A control which received only 0.000,000,1 c.c. of strain 48 died in 19 hours.

RESISTANCE OF APPARENTLY IMMUNE GUINEA PIGS TO LARGER AMOUNTS OF FOWL CHOLERA STRAIN 48. In this series two immunized animals were given 0.1 c.c. of strain 48 intra-abdominally, and three including 22, a former control which resisted 48 subcutaneously, were given 0.01 c.c. in the same manner. Seven and 22 survived, the latter dying 20 days later from toxemia as a result of a severe local necrosis at the point of injection. Nos. 16, 17 and 18 failed to resist the injection.

TABLE IX.

SHOWING RESISTANCE OF IMMUNIZED GUINEA PIGS TO FOWL CHOLERA STRAIN 48

	Fowl Cholera 52, 48 hour Bouillon Culture	hour Bouillon Culture		Fowl Cholera 48	Fowl Cholera 48, 48 hour Bouillon Culture	Julture
Record	First Injection 2nd Injection 1 e.e. subcut'ly 1c.e. subcut'ly	2nd Injection 1c.c. subcut'ly	Date	Amount	Method	Result
7	Nov. 6, 1915	Dec. 6, 1915	1-13-16	1 c.c.	Subcutaneous	Lived
9	Nov. 6, 1915	Dec. 6, 1915	1-13-16	0.5 c.c.	Subentaneous	Died 36 Hours
*22			1- 3-16	0.5 e.e.	Subcutaneous	Lived
6	Nov. 6, 1915		2-3-16	0.01 e.e.	Intra-abdominally	Died 22 Hours
13	Nov. 6, 1915	Dec. 6, 1915	2- 3-16	0.001 e.e.	Intra-abdominally	Died 22 Hours
*23			2- 3-16	0.001 e.c.	Intra-abdominally	Died 24 Hours
15	Nev. 6, 1915		2- 9-16	0.0001 e.e.	Intra-abdominally	Lived
16	Nov. 6, 1915	_	2- 9-16	0.00001 c.e.	Intra-abdominally	Lived
17	Nov. 6, 1915	Dec. 6, 1915	2- 9-16	0.000001 e.e.	Intra-abdominally	Lived
18	Nov. 6, 1915	_	2 - 9 - 16	0.0000001 e.e.	Intra-abdominally	Lived
* 25		_	9-0-16	0.0000001 6.6	Intra-abdominally	Died 19 Hours

\*Control

TABLE X.

SHOWING FURTHER EXPERIMENTS ON GUINEA PIGS WHICH RESISTED ONE OR MORE INJECTIONS OF FOWL CHOLERA 48

Record Dateof First	Dated	J. J.	irst	Second	Second Injection of 48, 48 hour Bouillon Culture	of 48, 48 hour Culture	Bouillon	Thir	d Injection	n of 48, 48	Third Injection of 48, 48 hour Bouillon Culture
No.	Injecti	non	01 48	Date	Date   Amount   Method   Result	Method	Result	Date	Amount	Date   Amount   Method	Result
-	Jan. 1	13,	1916	2- 3-15	3, 1916 2- 3-15 0.01 c.c. Intra-ab- Lived dominal	Intra-ab-	Lived	3-15-16	1 e.e.	Intra-ab-	3-15-16 1 c.e. Intra-ab- Died 17 Hours
22	Jan.	13,	1916	2-3-15	3, 1916 2- 3-15 0.01 e.e.	Intra-ab-	Lived				Died 2-23, Severe
*23	Feb. 3	က်	3, 1916		0.001 e.e.	0.001 e.e. Intra-ab- Died dominal 24 H	Died 24 Hours				
15	Feb.	9,	9, 1916								Died 3-4-16 Ne- erosis of Liver
16	Feb.	6	1916	9, 1916 3-15-16 0.1 e.e.	0.1 e.e.	Intra-ab Died	Died 24 Hours				
17	Feb.	6	1916	9, 1916 3-15-16 0.1 e.e.	0.1 e.e.	Intra-ab-					
18	Feb.	6	1916	9, 1916 3-15-16 0.01 e.e.	0.01 e.e.	dominal Intra-ab-	4½ Days Died				
	,	,				dominal					
92	Mar.	15,	Mar. 15, 1916		0.01 e.e.	Intra-ab-	Intra-ab Died				

\*Control

No. 7 appeared to have acquired an immunity, however, as shown in Table X, an injection of 1 c.c. of strain 48 intra-abdominally 41 days later caused death in 17 hours.

RESISTANCE OF RATS AND MICE RECEIVING STRAIN 52 TO STRAIN 48. Two rats and one mouse were used in a preliminary experiment.

The following table shows that immunized rat 2 resisted 0.01 c.e. of strain 48 subcutaneously, but 35 days later failed to resist a dose of 1 c.e. of 48 intra-abdominally. Its control 3 resisted 0.002 c.c. of 48 subcutaneously, and 35 days later resisted 0.5 c.c. of 48 intra-abdominally, dying one month later of unknown cause. Control 4 resisted 0.1 c.c. of strain 48 intra-abdominally, indicating that certain individuals at least have a high natural resistance to fowl cholera organisms.

Mouse 1 failed to resist 0.001 c.c. of strain 48 subcutaneously after receiving two injections of strain 52.

IMMUNIZING POWER OF FOWL CHOLERA STRAIN 52 AGAINST OTHER STRAINS OF THE HEMORRHAGIC SEPTICEMIA ORGANISM. For this experiment 20 rabbits were inoculated on May 31, 1916 with 1 c.c. each of a 48 hour bouillon culture of Fowl Cholera strain 52 subcutaneously. Local necrosis at the point of inoculation followed in all cases, and one animal succumbed to the injection, dying apparently of toxemia.

On July 5, 1916, 35 days later, 10 of the above animals were injected with virulent strains of hemorrhagic septicemia organisms recently recovered from natural outbreaks of the disease. Three bovine strains from widely separated sources, one ovine and one porcine strain were used in amounts of 0.01 c.c. of a 48 hour bouillon culture. The organisms were introduced subcutaneously, and two rabbits and a susceptible control were employed for each strain. Table XII shows that no protection against B. bovisepticus A was conferred. B. bovisepticus B and B. bovisepticus C were pathogenic in each case to one treated rabbit, and its control, B. ovisepticus failed to affect the control animal, hence resistance on the part of the immunized rabbits cannot be considered. B. suisepticus failed to prove virulent to either of the immunized animals, while the control died within 16 hours.

On August 11, a treated rabbit was given 0.2 c.c. of B. bovisepticus B, no bad results following. Another was given 0.2 c.c. of B. bovisepticus C and died within 40 hours. Four treated rab-

TABLE XI.

### SHOWING RESISTANCE OF RATS AND ONE MOUSE TO FOWL CHOLERA STRAIN 48

	D 3			F	OWL CHO	DLERA S	52		
Spe cies	Record No.		1st I	njection		1	2nd	Injection	
	110.	Date	Amount	Method	Result	Date	Amount	Method	Result
White Rat	1	Nov, 10 1915	0.5 e.e.	Intra-ab- dominal	No reac- tion	/			
"	2	Nov, 10 1915	0.5 e.e.	Subcutane- ous	No reac- tion	Dec. 6, 1915	1 c.c.	Subcutane- ous	No reac- tion
4.5	*3 Control								
"	†4 Control								
White	1	Nov, 10	0.25 e.c.	Subcutane-	1	Dec. 6,	0.5 e.c.	Subcutane-	
Mouse		1915		ous	tion	1915		ous	tion

	D			F	OWL CHO	OLERA 4	18		
Species	Record No.		1st I	njection			2nd I	njection	
	No.	Date	Amount	Method	Result	Date	Amount	Method	Result
White Rat	1	Feb. 9, 1916	0.002 e.e.	Subcutane- ous	Died 66 Hours				
44	2	Feb. 9, 1916	0.01 e.c.	Subcutane- ous	Lived	Mar. 15 1916	1 e.c.	Intra-ab- dominal	Died 17 Hours
4.6	*3 Control	Feb. 9, 1916	0.002 e.e.	Subcutane- ous	Lived	Mar. 15 1916	0.5 e.e.	Intra-ab- dominal	Lived
66	†4 Control					Mar. 15 1916	0.1 e.e.	Intra-ab- dominal	Lived
White Mouse	1	Feb. 9, 1916	0.001 e.c.	Subcutane- ous	Died 36 Hours				

<sup>\*3.</sup> Died April 17, 1916.

<sup>†4.</sup> Died July 29, 1916.

SHOWING RESISTANCE OF IMMUNIZED RABBITS TO STRAINS OF HEMORRHAGIC SEPTICEMIA OTHER THAN FOWL CHOLERA TABLE XII.

	48 hr. bou	48 hr. bouillon cult. subcut.			and the second s	1				,
Record No.	Date	Result	Bovisep- tieus A	Bovisep- Bovisep- Bovisep- ticus A ticus B ticus C	Bovisep- tieus C	Ovisep- tieus	Suisep- tieus	Date	Amount	Result
51	5-31-16	Local Necrosis	+					7- 5-16	0.01 c.c.	0.01 e.c. Died 6 Days
52	,,	"	+					7- 5-16	0.01 e.e.	e.e. Died 8 Days
*53	"	"	+					7- 5-16	0.01 e.e.	e.e. Died 16 Hours
54	"	, ,,		+				7- 5-16	0.01 e.e.	e.e. Died 4 Days
55	"	"		+				7- 5-16	0.01 c.c. Lived	Lived.
*56	,,,	"		+				7- 5-16	0.01 e.e.	Died 16 Hours
57	,,	"		+				8-11-16	0.2 e.e.	Lived
*58	"	"		+				8-11-16	0.1 e.e.	Died 16 Hours
29	"	"			+			7- 5-16	0.01 e.e.	0.01 c.c. Died 4 Days
09	"	"			+			7- 5-16	0.01 e.e. Lived	Lived.
*61	,,	7,9			+			7- 5-16	0.01 e.e	0.01 e.e. Died 16 Hours
.62	,,	,,,			+			8-11-16	0.2 c.c.	Died 40 Hours
*63	"	"			+			8-11-16	0.1 e.e.	Died 40 Hours
64	,,	"				+		7- 5-16	0.01 e.e. Lived	Lived .
65	,,,	,,				+		7- 5-16	0.01 c.c. Lived	. Lived
99*	"	,,,				+		7- 5-16	0.01 c.c. Lived	Lived.
89	9,9	"					+	7- 5-16	0.01 e.c. Lived	Lived.
69	37	"					+	7- 5-16	0.01 e.e. Lived	Lived
02*	"	"					+	7- 5-16	0.01 e.e.	. Died 16 Hours
7.1	"	"					+	8-11-16	0.1 e.c.	Lived
72	"	"					+	8-11-16	0.5 e.c.	Lived
73	"	"					+	8-11-16	1 c.c.	Lived
74	"	"					+	8-11-16	2 c.c.	Lived
•75							+	8-11-16	-	0.01 c.c. Died 16 Hours

# TABLE XIII.

\*Control

	First Hemorrhagic Septicemia injec- tion subcutane'ly	norrh ia ir eutan	nagic njec- ne'ly		Second F	Iemorrha	gic Septic	emia Injec	tion Sube	Second Hemorrhagic Septicemia Injection Subcutaneously
Record No.	Date	2 2	Amount	Bovisep- ticus B	Bovisep- Bovisep- Ovisep- tieus B tieus C tieus	Ovisep- tieus	Suisep- tieus	Date	Amount	Result
55	7-5-16  0.01 e.e.	0.01	e.e.	+			The same of the sa	8-11-16	1 e.e.	Lived
58 Control				+	+			8-11-16	0.1 .ee.	0.1 .ee. Died 16 Hours
09	7-5-16 0.01 e.e.	0.0	e.e.		+			8-11-16	2 c.c.	Lived
63 Control								8-11-16	0.1 .ee.	Died 40 Hours
64	7-5-16 0.01	0.01	l e.e.			+		8-11-16	2 e.e.	Died 40 Hours
65	7-5-16 0.01	0.01	l e.e.			+		8-11-16	2 c.c.	Died 40 Hours
99	7-5-16 0.01	0.0	1 e.e.			+		8-11-16	2 e.e.	Died 40 hrs. not rec. Strain 52
67 Control						+		8-11-16	1 e.e.	Died 40 Hours
89	7-5-16 0.01 e.e.	0.0	1 e.e.				+			Peritonitis Died 8-10-16
69	7-5-16 0.01	0.0	1 e.e.				+	8-11-16	1 e.e.	Lived
75 Control					2	,	+	8-11-16		0.01 e.e. Died 16 Hours

bits were given amounts of *B. suisepticus* ranging from 0.1 to 2 c.c. respectively, without noticeable bad effect in any individual. The control died in 16 hours from a culture dilution of 0.01 c.c.

FURTHER EXPERIMENTS ON ANIMALS WHICH RESISTED VIRU-LENT CULTURES ON 7-5-16. In this experiment rabbit 55, which had resisted 0.01 c.c. of B. bovisepticus B was given 1 c.c. of the same strain 37 days later. No bad results followed. Rabbit 60. which resisted 0.01 c.c. of B. bovisepticus C received 2 c.c. of this strain again on August 11, without showing a reaction. rabbits which had not succumbed to B. ovisepticus were again injected with the same strain in the amount of 2 c.c. A control was given 1 c.c. Death resulted in each case within 40 hours. Apparently no special immunity had been conferred since the control had shown as much resistance as the treated animals. bit 68 of the B. suisepticus series was lost through death from peritonitis on August 10. Its mate 69 of the same experiment on July 5 was again inoculated on August 11 with 1 c.c. of B. suisepticus. No bad effects were observed. Apparently culture 52 confers absolute immunity against this particular strain of B. suisepticus and it is our intention to continue these experiments, using other strains of B. suisepticus and testing the immunity produced by culture 52 in swine.

Conclusions. No noticeable resistance is conferred to fowls by the use of killed fowl cholera bacilli as immunizing agents.

Fowl cholera strain 52 in the live state confers a marked resistance to a highly virulent strain of the fowl cholera bacillus. The immunity is not absolute, since dilutions of 0.01 c.c. to 1 c.c. of a virulent culture are usually fatal in fowls, rabbits and guinea pigs.

Strain 52 also confers a fair degree of immunity to rabbits against certain strains of *B. bovisepticus* and complete immunity to a virulent strain of *B. suisepticus*.

<sup>—</sup>It is reported that up to October 1, 1916, the exportation from the United States of animals intended for war purposes amounted to 731,313 horses and 223,708 mules, with a value of about \$200, 247,486.

<sup>-</sup>Veterinarian Daniel LeMay, 4th Field Artillery, retired December 8, 1916, with the rank of Major.

#### CLINICAL AND CASE REPORTS

"Knowledge is born in laboratories and in the experience of the thoughtful. It develops form in the journals and 'when dead it is decently buried in books'."

#### INTUSSUSCEPTION OF SMALL INTESTINE OF A COW

J. N. FROST, Ithaca, N. Y.

Patient was a grade Guernsey heifer sent to the surgical clinic by the Professor of ambulatory clinic, with the diagnosis of intussusception of intestine and the following history:

Animal was found standing with hind legs stretched backward, treading constantly. Feces had been passed only once in last twenty-four hours and patient had not eaten in forty-eight hours. Milk secretion had ceased. Pulse 100, temperature 101.4. Breathing was rapid and shallow. Mucous membranes were pale and the extremities were cold with the animal shivering. Peristalsis was fair on the left side but suppressed on right and pressure on lower part of abdomen on right sight brought symptoms of pain. Rectal examination found the posterior intestinal tract empty except for bloody mucus. Intussusception of small intestine was found on right side of abdominal cavity.

Owing to the drifted condition of the roads the animal was not brought to the clinic for forty-eight hours after the diagnosis was made.

Mar. 20, 1916. When the animal was brought to clinic she was very weak. Movements were stiff and unsteady and the abdominal muscles were contracted and tense. Animal was straining continually and passing some bloody mucus. Respiration rapid and shallow. Peristalsis and contraction of rumen absent. Pulse 120, temperature 101.8.

Area on right flank was shaved; washed with gasoline and painted with tincture of iodin. Animal was given one ounce of chloral hydrate in two quarts of water per rectum and placed on the operating table. Cocaine was injected locally over the line of incision.

Incision was made through the skin; the muscle fibres were separated and the peritoneum punctured. An assistant then grasped the intestine and brought the intussuscepted portion up through the incision. The jaws of two pairs of dressing forceps

were covered with rubber tubing to lessen the injury to the intestines and one pair was clamped on each side and about two inches from the intussuscepted intestine. Three feet of the intussuscepted intestine were then removed and end to end anastamosis was performed in the following way: The mesentery was cut away from the diseased portion of the intestine; the blood vessels ligated and the intestine removed. The cut ends of the intestine were then sutured with two rows of intestinal sutures, bringing the serous coats together and the mesentery was folded and sutured to the intestine. During the operation the intestine was frequently washed with normal salt solution. The skin and muscle wounds were closed with a single row of sutures.

The animal was then removed from the table and given an enema of warm salt solution and a stimulating drench of capsicum and nux vomica. Drench and enema were repeated six hours later.

Mar. 21, 1916. Eighteen hours after operation the cow had passed feces three times. Drank a pail of warm water and ate a quart of bran. Pulse 90, temp. 101.8. Enema and drench repeated twice daily.

Mar. 22, 1916. Fair amount of feces mixed with mucus passed during the night. Ate bran and alfalfa and drank water. Drench and enema repeated. Pulse 88, temp. 102.

Mar. 23, 1916. Animal eating, drinking and chewing cud. Feces passed without mucus. Drench repeated daily; enema discontinued. Pulse 72, temp. 101.6.

Mar. 24, 1916. Improvement continues. Pulse 70, temp. 101.6:

Mar. 25, 1916. Improvement continues, Pulse 68, temp. 102. Slight suppuration of skin wound; surface painted with iodine.

Mar. 26, 1916. Feces passed with large amount of mucus. Pulse 65, temp. 101.7. During the day the cow aborted a two months fetus. The uterus was irrigated with ¼% Lugol's solution and the membranes were expelled.

Mar. 27, 1916. Pulse 70, temp. 102.2. Slight discharge from the vagina. The external genitals were washed with ½% Wescol solution and the vagina irrigated with normal salt.

Mar. 28, 1916. Slight suppuration of skin wound. The stitches were removed and surface of wound painted with iodine, Pulse 65, temp. 101,

Mar. 29, 1916. Small amount of necrotic tissue removed from the skin wound and the surface painted with iodine. Irrigated uterus with normal salt solution. Milk now being secreted. Pulse 60, temp. 101.

Mar. 30, 1916. Feces normal; animal on full diet with increase in milk. Pulse 60, temp. 101.6. The external wound was treated with iodine daily until complete healing had taken place.

#### RUPTURE OF THE PREPUBIAN TENDON OF A COW\*

M. W. SULLIVAN, Marcellus, N. Y.

The subject was a large grade Holstein about four years old. On the first visit, the owner said the cow was due to calve in two weeks and he mistrusted a dead calf. I made a careful examination and everything appeared normal and the calf still alive. Animal showed no symptoms of pain but did not care to eat very much. I administered a laxative and prescribed a tonic and bitter for the appetite. Owner called again in three days stating that the cow was no better, but on calling I could not find anything wrong except that she was still off her feed.

About four days later I was again called, the owner stating a large swelling had appeared on the belly. The cow was in a large box stall with plenty of straw on the floor and I readily agreed with him, for her abdomen nearly touched the straw. I concluded there must be a rupture of the prepubian tendon to allow this condition although I could not find any information on the subject in the cow. The cow had showed no symptoms of wanting to calve but I decided to remove the calf. The os uteri had not dilated as yet but after repeated efforts I finally delivered two calves, one a posterior and the other an anterior presentation. I was unable to save the calves for it took so long to deliver them. The first calf delivered weighed seventy-five pounds and the second seventy- eight, making a total of one hundred fifty-three pounds of calves.

I attempted to remove the placenta but, on account of the enlargement and displacement of the uterus, I could not reach the cotyledons, so very little was removed. The cow began discharg-

<sup>\*</sup>Read before the Central New York Veterinary Medical Association,

ing and finally developed metritis, which I could not treat satisfactorily on account of the conditions above stated. The animal gradually grew weaker and we decided there was no help, so she was killed by owner.

#### LIVER LESIONS IN FOWL CHOLERA

J. B. HARDENBERGH, AND FRED BOERNER, JR., Philadelphia, Pa.

Specimen No. 7843—Three turkeys (dead).

HISTORY:—Dealer purchased large number of turkeys for holiday trade. Twenty-four hours after getting them home found several dead. Purchasers of the live birds began to return dealer the dead fowls. Veterinarian called submitted several for examination. Autopsies on all three were practically identical as follows:

AUTOPSY:—Lungs edematous; pericardial sac contained excessive amount of serous fluid; pericardium and epicardium showed petechiae and ecchymoses; spleen swollen and congested; liver congested and presented innumerable small yellow foci throughout resembling avian miliary tuberculosis but too small to be easily confused with lesions of entero-hepatitis. On section appeared macroscopically as small infarcts.

Intestinal tract inflamed throughout entire length with excessive reddening of mucous membrane in small areas. Caeca inflamed and showed in lower portion several small tumefications with thickened mucous membrane and increased redness. Small amount of fluid in peritoneal cavity.

Smears from heart blood, spleen and yellow liver foei showed typical bipolar organisms in large numbers.

Cultures examined twenty-four hours later showed pure strains of B. avisepticus.

Animal inoculations on hens, rabbits and guinea pigs resulted in death of all in from twenty-four to forty-eight hours. Hens showed typical lesions of fowl cholera on autopsy including the liver lesions. One guinea pig and one rabbit showed the same liver lesions. Histological sections of liver showed microscopically cloudy swelling—congestion and small areas of necrosis containing masses of bipolar bacilli.

The finding of liver lesions (only occasionally mentioned in the literature) and inflamed caeca in turkeys may confuse with entero-hepatitis unless a bacteriological examination is made, therefore this report.

#### CARCINOMA OF GLOTTIS IN COW

F. A. WALTER, D.V.M., Lemont, Ill.

Upon receiving a hurry up call on Monday, January 9, 1917, I found the cow in extreme distress. A great quantity of frothy material was oozing from the mouth and nostrils.

The history of the case disclosed the fact that she had been suffering for some time with difficult respiration and symptoms above mentioned, but the owner did not deem it necessary to call a doctor.

I proceeded to operate and insorted a tracheotomy tube which afforded instant relief.

I placed the animal on soft diet, of which she partook sparingly, and saw her next day whereupon owner told me she refused to eat any more. Upon further examination I found the omo hyoideus and sterno cephalicus greatly swollen; thyroid gland enlarged and offensive discharge through the mouth and nostrils.

I pronounced the case incurable, diagnosing it as carcinoma of glottis.

The cow was destroyed and glottis removed. A typical cauliflower growth, completely filling the glottis, was found which was unmistakably cancerous.

<sup>—</sup>Action has been delayed upon the Lobeck bill in the interests of the employees of the Bureau of Animal Industry by the press of other work. It would be of material benefit to the committee if the state and local veterinary associations as well as individual veterinarians would adopt favorable resolutions and write letters to the committee and to the congressmen and senators from their districts,

#### ABSTRACTS FROM RECENT LITERATURE

Strangulated Intestinal and Distinct Inguinal Hernia in a Mare. Veterinary Major Pezet. Rec. de Med. Veterinaire. A ten-year-old artillery mare inflicted upon herself, in the left gluteal and mammary regions, a deep wound accompanied with excessive lameness. The wound of the gluteal region healed after a month and only the ectopia of the small intestine remained evident. It appeared to be a case of chronic inguinal hernia. After some time, the mare manifested a violent attack of colic, which suggested the diagnosis of strangulation for which the mare was to be operated. This was done with all care and the intestine was found to be normal and only slightly congested. It was reduced after some peritoneal adhesions had been broken up or dissected. Suddenly the mare stopped breathing and notwithstanding all restorative measures, died.

Post mortem.—Abundant reddish fluid collection in the abdomen—peritoneum inflamed—small intestine normal in its first half but purplish in the last. The large colon and cœcum being removed, there was exposed in the superior part of the mesentery a tear, 15 centimeters long, through which a portion of the small intestine had passed and been strangulated. The tear was antemortem with its edges well organized. Around the inguinal canal the parts were normal. All the organs in the body were healthy.

It was the strangulation of the intestine, passed through the tear of the mesentery, which had given rise to all the symptoms attributed to the chronic inguinal hernia.

LIAUTARD.

A Granulomatous Affection of the Horse—Habronemic Granulomata (Cutaneous Habronemiasis of Railliet). Lionel B. Bull. Jour. Comp. Path. and Therapeutics, Sept. 30, 1916, v. 29, No. 3, pp. 187-199, 5 figs.—This paper deals with granulomata, usually located about the urethral orifice in the glans penis of the horse, but also occurring on the sheath, rarely elsewhere. The condition is said to be not very uncommon in certain parts of Australia, where these tumors are usually regarded as botryomycotic granulomata, the localities now known for the disease being South Australia and the northern part of Victoria. It probably has a wider distribution in Australia.

The tumors appear suddenly and grow rapidly for the first three or four weeks. Subsequently they gradually enlarge, and usually show no tendency to disappear. The tumors are recognized by their situation, their tough, fibromatous nature, and by the appearance of small, yellowish points under the epithelium in regions where the skin is unpigmented. In size the tumors may be as large as a pea or from that to larger than a walnut, when on the glans penis, and may be even larger when on the sheath. They may be single or multiple, and are usually ulcerated on the surface. section they are tough and firm, greyish to pinkish in color, and contain scattered, irregular, yellowish, caseous areas which may be as small as a pin point or 1 mm. by 4 to 5 mm. in diameter. These areas may contain calcareous matter; they may be close together or scattered; they may be easily enucleated in the older lesions, and on enucleation are seen to be irregular in shape and sometimes branching. Microscopic examination shows the superficial granulation tissue of the ulcers, with a marked infiltration of the tissues with eosinophiles; the stratum corneum is slightly thickened; the rete mucosum is hypertrophic and usually slightly infiltrated with eosinophiles; the cutis vera is normal except for a slight invasion with eosinophiles; immediately under the cutis vera the eosinophile infiltration is very marked, the eosinophiles at times so numerous as to fill all the lymph spaces, leaving only a connective tissue stroma supporting them; there is an increase in small blood vessels, hyperplasia of fixed connective tissue cells, and there are areas of embryonic connective tissue cells and some caseous areas. surrounding tissue reaction is represented by a proliferation of the fixed cells, with sometimes the formation of a well defined fibrous capsule.

The particularly interesting feature about these lesions is the occurrence within the necrotic areas of the remains of larval nematodes and the presence of spaces previously occupied by these worms. An examination of these nematodes shows that they closely resemble the larval Habronema as figured by Ransom. (Habronema is the genus in which are now placed the worms formerly known as Spiroptera microstoma and Spiroptera megastoma from the stomach of the horse.) These parasites are accidental in these tumors, as they cannot possibly complete their life history here. They belong, therefore, to the cutaneous habronemiases, such as "summer sores", "granular dermatitis", and "esponja." (For a review of papers dealing with this topic, see the Journal of the A.V.M.A.for March, 1916.) Bull does not agree with Railliet's

surmise (which is also that of Descazeaux) that the embryo worms from manure enter the skin, and is of the opinion that the worms are carried by biting flies, inoculation with the worm taking place as the fly feeds.

Bull is of the opinion that the "swamp cancer", or "equine granulomata" of Lewis, found in the Northern Territory of Australia, is a similar habronemiasis.

The treatment advised is the complete excision of the lesion before it becomes inoperable. Prophylaxis is a matter of ridding horses of the adult worms in the stomach, and attention to the breeding places of the flies.

M. C. Hall.

EMPYEMA OF NASAL BONES IN A THOROUGHBRED STALLION. Edward Langford, M.R.C.V.S. and W. M. Scott, F.R.C.V.S. Veterinary Record. The stallion had never had influenza, strangles or even catarrh and his molars were in excellent condition. He had a foul smelling, grumous appearing, muco-purulent discharge from the left nostril with much swelling of the submaxillary glands. He was in good condition and served mares. Steaming of the nostrils, tonic medicines, a run to grass, insufflation of the nasal cavities with iodoform alternated with injections of chinosol solutions, all failed to relieve him. He was operated by trephining over the nasal bones, curetting of the cavity, the ethmoid bone, the frontal and superior maxillary sinuses and all detached bones were re-The operation was accompanied with much hemorrhage. The subsequent treatment consisted in irrigations of the nasal cavities with normal saline solution, alternated with tincture of iodin and permanganate. An antigen vaccine was prepared and one ampule injected weekly. After nearly one month the wound was found granulating, the discharge was slightly intermittent and with yery slight odor. After a fortnight recovery was complete.

Scrapings of the tissues removed by the curetting, revealed the presence of Streptococcus brevis, Bacillus necrosis and Staphylococcus aureus and albus. It was from them that the vaccine was prepared.

Liautard.

PODODERMATITIS SUPPURATIVA RESULTING FROM A SPLIT SHOE-NAIL. A. Wenzel. Wiener Tierärztliche Monatschrift, Vol. 2, pp. 327-328, 1915. A stallion was lame; the right hind hoof seemed to be affected. On examination with the nippers the wall seemed a

trifle painful to pressure all over. The hoof showed no alterations; the coronet was not sensitive to pressure. The nails had been properly driven; on removing the shoe which had been worn for 10 days the horse evinced pain. No pus came out of any of the nail holes; the shoe was properly made.

After carefully cleaning the hoof a poultice was applied to soften the horn. The next day the stallion used his limb better, but did not plant the hoof firmly on the ground. I again examined the hoof with the nippers and decided to operate on a sensitive spot between the last two nails.

At first the basal or ground border was pared, and the horny sole was cut through at the white line. A deep black, thick pus flowed out, disclosing a cavity next to and behind the last nail. Since such conditions are caused by a piece of a nail being broken off, and then being driven against the fleshy wall by another nail, I looked for such a foreign body.

The basal border was further cut into for several millimeters and the opening in the horn enlarged close to the wall. The knife soon ground against a piece of iron. I removed the foreign\_body; it was 32 millimeters long, and consisted of the shank of a nail that had split lengthwise beginning at the point of the nail. While the outer half of the nail shank had taken the desired direction and penetrated the lateral hoof wall, the inner half penetrated the laminae and was driven into the "fleshy wall" and then broken off.

The blacksmith had not noticed the split nail and clinched the half nail in the usual manner. Recovery followed. Berg.

CHLORIDE OF ADRENALIN IN EXCESSIVE STRAINING AFTER PARTURITION. Henry Thompson, M.R.C.V.S. Veterinary Record. A heifer had a difficult and painful labor which left her with a live calf. After 24 hours she was taken with very violent straining. She was lying down, and, after being placed on her sternum, 12 drams of chloral hydrate dissolved in a pint of water were given to her and the os uteri smeared with the extract of belladonna. A cold water bag was applied to the loins and laxative and sedative medicines prescribed. This treatment having given unsatisfactory results, and the cow still straining, an injection of one dram of adrenalin chloride was made hypodermically, through the vaginal passage, into the neck of the uterus, on each side of the os. Ten minutes after the injection the cow seemed relieved, was appar-

ently comfortable and in half an hour was on her feet and eating. She had no further trouble. The author has resorted to this treatment in several cases with satisfactory results.

LIAUTARD.

Sources of Error in the Mallein Ophthalmo Reaction. J. Schnürer. Wiener Tierärztliche Monatschrift, Vol. 2, pp. 314-327, 1915. During the present time of war the mallein eye test has found extraordinary extensive application. Since the beginning of the war over 100,000 c.c. of mallein have been distributed from my laboratory; i.e., sufficient for 1 million horses. The reason is plain: the spread of glanders through contact with heavily infected countries (Russia, Serbia).

The incorrect results may be grouped into 2 classes: 1. Healthy horses reacted positively; 2. Affected horses reacted negatively.

- I. Sound horses react positively. Causes. 1. Too early judgment of the test. Between 6 and 8 hours after beginning the test, there is a non-specific, traumatic secretion which has often been interpreted as a doubtful reaction by experienced workers. A definite positive reaction, with copious pus, strong reddening of the conjunctiva, swelling of the conjunctiva and the lid do not result from purely traumatic reaction. The secretion and other reactions due to trauma disappear in the 10th and 12th hour. This source of error may therefore be avoided by reading the test 16 to 18 hours after the beginning.
- 2. Reaction due to injuries to the eye; injuries to the conjunctiva from sand, particles of straw, scratches on the cornea. Particles of lime may find their way into the conjunctival sac. The horses rub against walls because of parasites, and in this way a traumatic reaction results from lime particles in the conjunctival sac. For these reasons horses that are exhausted, dirty or dusty should be given a day or two of rest before malleinisation.
- 3. Previously existing conditions of irritation of the conjunctiva such as occur in moon blindness, strangles, and angina. A careful clinical examination of positive or doubtful reacting horses will obviate this source of error.

In doubtful cases the test may be repeated at once in the same eye. This should be cleaned with cotton and the test observed and judged at the end of 5 to 6 hours. Glandered horses show a definitely positive reaction by this time, usually with rise in tempera-

ture. When the first eye test is positive and there is a suspicion that it is not a specific reaction, the test may be made at once on the other eye. Judgment should be made at the time previously indicated, 16 to 18 hours. If the second eye reacts positively, the reaction is specific with a very high degree of probability.

4. A frequent source of error in "healthy" horses lies in the too infrequent and improperly performed post-mortem examination. A single very small nodule in the lung is regarded as an explanation for a positive reaction to tuberculin in a "healthy" animal. With more careful post-mortem examinations, fewer positive reactions will be found among healthy horses.

II. Glandered horses react negatively. 1. Improper application of the mallein. It is absolutely necessary that the entire mucous membrane of the conjunctival sac of the lower lid come in close contact with the mallein. Streaking the mallein diagonally over the cornea, or moistening the caruncula with it, are the most frequent cause of error. A camel's hair brush is best. I do not like pipettes. I depend upon an energetic application of the mallein with the brush. Massaging the lid is not necessary.

2. Symptoms and pathological conditions are mistaken for those of glanders. Injuries to the body surface, may, through neglect, cause swellings which become very suspicious in appearance because of secondary inflammation of lymph vessels and glands. Usually, the removal of the hair, opening up the secretion of the skin, the application of moist bandages, etc., will clear up the symptoms in 24 hours. The pathological-anatomical conditions do not enable a post-mortem differentiation between purulent processes in the skin and those of glanders; a bacteriological examination likewise fails because glanders bacilli are rapidly disintegrated in the pus from abscesses known to be glandered.

In arriving at a diagnosis, the temperature is the guide in most cases of ulcer formation. Fever is always present in glandered horses which have the disease in a progressive form. Hence, I permit the destruction of horses with a temperature of 37 or below, only under exceptional circumstances.

- 3. The purulent secretion was removed by stable hands; sometimes the secretion is so dry that it falls off or is rubbed off by the horse, against a wall.
- 4. The horses are in the incubation period of reactivity. This is regarded as lasting from 2 to 3 weeks. It is therefore possible,

that a horse which reacts negatively may show glanders 8 or 10 days later. In all cases the eye test should be repeated after three weeks.

5. Horses in the advanced stages of glanders do not react to mallein. Horses in fever may be malleinized.

BERG.

TRIPLETS IN CALVES. J. H. Parker, M.R.C.V.S. Veterinary Record. The author was called to a dual purpose Shorthorn cow from which two calves had been delivered the day before by the cowman. It was ascertained that both calves were coming at once and they had been pulling a fore leg of different calves, but finding their mistake they got the cases all right after a while. The writer said that the cow the next day, was inclined to heave but not violently. The next day she still heaved and on examining her per vaginam, another calf was found coming backwards. It was removed. The cow died.

Of the calves delivered, two were bulls coming forward and a heifer backwards.

LIAUTARD.

New Operation for Cartilaginous Quittor. Perrier. Revue Générale de Médecine Vétérinaire, Vol. 25, pp. 402-410, 1916. War conditions caused a large number of cases of cartilaginous quittor among our patients. The classical operation—excision of the periople—is a laborious one—and often gives unsatisfactory results. I have modified the technic of the operation, step by step, so that the new operation now gives excellent results.

Technic—The horse is cast, and the affected member fixed in position as in the classical procedure. Hemostasis is assured by a rubber ligature (an old air tube from a bicycle) around the pastern. The hair is cut and the field of operation disinfected. With a convex bistoury a horizontal incision is made along the entire length of the cartilage, about 1 centimeter above the periople and parallel with it. A second curved incision is made above the first or above the fistulae, with a sage knife in such fashion that the skin is incised obliquely. (The two incisions form a letter D, the flat side of the D being horizontal or nearly so, the curved side above or proximal to the flat side). In the diagram, the flat side of the D extends about half the length of the periople, the hoof being viewed from either the lateral or medial sides). The curved incision should follow approximately, the superior limit of the tumefaction produced by the affected cartilage.

The flap of the skin thus delimited is removed; the cartilage is visible. The latter is separated, except at the two extremities; from the tissues adjacent to both of its faces, by means of right and left sage knives. The part of the cartilage thus dissected is extirpated with the aid of a sage knife which is passed first along its internal face, then directed upwardly and outwardly by a turning movement of the wrist. The posterior extremity is then removed without difficulty. With regard to the anterior extremity, it is prudent to work at it progressively; making small cuts and maintaining the articulation of the foot extended in order not to injure the subjacent synovial bursae. Curetting the superior border of the third phalanx removes the remaining debris of the cartilage and closes the operation.

The fistulae are included as far as possible within the D shaped incisions; those that reach to the periople should be curetted with care. If there is destruction of the periople at any point, the wall immediately subjacent should be thinned and the borders of the wound cleaned.

Dressing—Three-quarter shoe. Cleaning the wound with hydrogen peroxide. The wound is packed with successive layers of cotton and a compress applied to avoid hemorrhage. The dressing may be held in place with tape tied to opposite heels, or with a cloth band, each turn of which passes to a nail in the opposite quarters, entirely as in the classical procedure.

After-treatment—The first dressing should be removed at the end of three or four days, the cotton which packs the wound ordinarily retards cicatrization. After cleaning the wound, a new dressing is applied (use physiological salt solution) which is renewed when suppuration appears. The wound heals rapidly, at the end of three or four weeks there remains but a small superficial wound which heals rapidly, exposed to the air, with the simple application of an alcoholic solution of pieric acid.

Advantages—1. The operation is much less laborious, since paring is not necessary, and it is less delicate because one sees what is being removed and left behind.

- 2. Recovery in six weeks.
- No deformation of the foot. Only a very minute examination of the foot will reveal the operation a few months afterward.
- 4. The animals remain fit for all services, and are not depreciated as is often the case in the classical operation.

Out of 27 cases, 23 or 24 returned to the front. It may be stated that in every case where the wall has been spared or the periople has not been completely destroyed at one point, the operation gives a rapid, certain result, without deformation of the foot or depreciation of the horse.

Berg.

Caseous Pneumonia in a Pig. Dr. P. Chausse. Rec. de Med. Veterinaire. This is a case of tuberculosis in a pig, contracted by inhalation, which besides its rarity, deserves attention because of its typical form. It is handsomely illustrated and besides the description of the aspect and condition of the animal, presents minutely all the lesions which are essentially characteristic and indicates the extent of the generalization.

The lesions of the thoracic cavity, and principally those of the lungs where manifestations of the caseous pneumonia existed, were seen prevailing. The number of tubercles was enormous. The case is summarized as a rare one of caseous pneumonia with marked and most predominating lesions of the anterior part of the right lung. The maxillary lymph glands, corresponding to the buccopharyngeal isthmus and the staphyline amygdalae, proved healthy, while in ordinary cases, they are the most affected. The mesenteric glands had also two little caseous centers. The liver and spleen were also diseased.

Wound of the Lungs—Recovery. R. Henderson, M.R.C.V.S. Veterinary Record. A three year old colt received a large wound on the chest just at the junction of the abdomen. While galloping, he was caught by the iron catch of the gate, the skin was severed, and the intercostal muscles badly torn. A distinct view of the lung could be detected and proved by air escaping through the wound. No probing of the wound was made. It was carefully washed, stitched up and the animal left to his chances, with an unfavorable prognosis. At the next visit the animal was still alive, had a temperature of 104° and complete loss of appetite. However, improvement gradually set in and final recovery ensued.

LIAUTARD.

TREATMENT OF STRANGLES. (Traitement du "Mal de Chien" par le Sérum Névrosthénique). Veloppe. Revue Générale de Médecine Vétérinaire, Vol. 25, pp. 360-365, 1916. One of the most fre-

quent complications in strangles in the horse which causes considerable losses to breeders is the one known as distemper ("Mal de chien"). Its effects are disastrous, interfering with the innervation of the posterior limbs and destroying the rigidity of the vertebral column. The veterinary literature contains few remedies for this chronic myelitis. The treatment usually given in paraplegia gives results that are uncertain or entirely valueless.

By the advice of a confrere who had obtained good results in the treatment of the nervous form of dog strangles, I tried the following formula, which is analogous to the serum of Fraysee, used in human medicine. The results were excellent. Following is the formula I have found most satisfactory after numerous trials:

This mixture must be prepared with care; a solution is not obtainable. The strychnin cacodylate is practically insoluble in water, hence the required amount should be powdered very finely in a mortar with the addition of a few drops of warm distilled water. Otherwise the syringe needle will clog. Aside from this, large particles will be readily absorbed and will cause foreign body irritation if they are injected.

The nature of the strychnin salt used is not a matter of indifference; it is certain that the cacodylate gives results superior to those obtained with the sulfate or even the arsenate. Intramuscular injections should be made in the neck, shoulder or croup. In spite of all aseptic precautions, there were abscess formations, with the elimination of necrotic muscle tissue; but there is a rapid healing.

With regard to the dosage; one may well assume that nine times out of ten, we use too small doses and this is the cause of a large number of failures. Strychnin is not a cumulative poison. Numerous researches have shown that strychnin administered hypodermically or intramuscularly is elimited in 6 hours. From this it follows that a maximal dose may be administered 3 times in 24 hours without fear of accident. I have had several occasions to administer to dogs below medium size, doses of 5 milligrams twice a day without observing a single contracture. The doses administered should therefore be progressively increased until there is hyper-excitability, beginning of course, with a minimal dose and

increasing it rapidly if the reaction is not sufficient. It is well to watch for idiosyncrasies, as animals affected with strangles are sometimes very sensitive to cardiac medicaments.

One may therefore, begin with 1 centigram, i. e. 2 c.c. of the solution, whatever the size or weight of the animal. According to conditions the dose is increased each day by 1 or 2 c.c. On the tenth day the dose may be 10 centigrams or even more. The 11th and 12th days the same dose of 10 centigrams is administered and the treatment is then abruptly stopped for about 10 days when it is resumed. I have often observed that the maximal dose may be injected for 8 consecutive days without bad effects. This of course, is due to the rapid elimination and acquired tolerance for the strychnin.

To summarize; from the favorable results that have been obtained, the treatment merits systematic application in every case of lumbar myelitis, even when it is not due to strangles. (Several cases are described in detail).

Intestinal Strangulation in a Horse. J. Bowmann. Veterinary News. An eight year old gelding had colic. His pulse went up to 80, respiration 32, temperature 99.5° F., the body was covered with perspiration, lying down and rising very carefully. Volvulus suspected. A subcutaneous injection of arecolin was given and, per os, a dose of acidum hydrochloricum. The condition remained the same. No defecation, abdomen distended. Rectal examination negative, only a dry, hard dung ball was found. Death took place at the time of the examination. The post-mortem revealed that there was, in the ileum a strangulated loop about one foot long. The strangulation was due to the peduncle of a tumor, a lipoma. A few Teniae perfoliata were found near the cœcum.

LIAUTARD.

AN UNSUSPECTED UNSOUNDNESS. Abraham Green, M.R.C.V.S. Veterinary Record. Subject: A bay gelding seven years old and to all appearances, with good legs and feet. Wind and eyesight all right. When ridden or driven, went well, answered to the bit and had perfect movements. Was put in stable to be watched, suspected of having stringhalt. On viewing quietly, and asking him to turn in the stall, the writer found that the horse took no notice. On further testing he was found to be deaf. Practitioners would

do well to watch in detecting similar cases when examining horses for soundness. Not once in a thousand times, would it strike a veterinarian to test an animal for the hearing.

LIAUTARD.

SEASONAL PREVALENCE OF HYPODERMA BOVIS IN 1915, TOGETHER WITH OBSERVATIONS ON THE TERRIFYING EFFECT H. Bowis HAS UPON CATTLE AND LESIONS PRODUCED BY THE LARVAE. S. Hadwen. 46th Annual Report of the Entomological Society of Ontario, 1915. servations and experiments on H. bovis outlined in the paper were preparatory to work planned on the prevention of egg laying and destruction of larvae. Statements in literature in regard to the seasonal prevalence of H. bovis and H. lineatum are very vague. Observations upon the seasonal prevalence were made by the author upon ten cattle kept in a field directly in front of the laboratory. Whenever the cattle were seen running someone connected with the laboratory went out to look for flies. If flies were seen in the morning, no further trouble was taken for that day. On June 14th and 22nd flies were caught. No flies were seen June 15th, but 2 were taken June 22nd. This catching of flies, the author thinks might have contributed to error in the observations. H. bovis invariably causes alarm among cattle. Meteorological records were kept and the changes in temperature coincided almost perfectly with the appearance and disappearance of the flies. Seasonal activity at Agassiz in 1912 was 55 days, in 1914, 57 days and in 1915 was 55 days. The observations coincide closely with the pupal period and with the time the last larvae emerge from the backs of cattle; both at Agassiz and Europe. The flies in these different observations were seen from June 1st to August 1st with one or two days' variation either way, the last of May or the first of August. Different observations place the emergence of the larvae during the latter part of May and as late as July 2d-3rd. The pupal period has been found to be from 31-44 days. The average of the times quoted gives a result of 35 days. The last larvae emerging about the first of July, the season for flies cannot extend very far into August and the records in these observations show this to be the case. The author found that if the pupa of H. lineatum was placed in an incubator, the period was reduced to 13 days. Larvae of H. bovis were kept in an incubator at 80°. The pupal period was shortened to 17.4 days. The early appearance of some of the flies may depend somewhat upon the situation in which

11.

the larvae emerge. If in a warm place the pupal stage will be relatively shortened.

H. bovis engenders fear in cattle because of the clumsy, persistent attack launched against-them and that is probably the reason they stampede when attacked by the flies. When the Tabanidae (or other flies) attack, the animal feels that she has control or can get away from the insect. The warble fly is not thus easily dislodged, the animal loses its head and runs away, then finding itself followed becomes wild with terror. Cattle are said to fear the fly because it resembles a bee. Two calves that had neither seen a warble fly nor bee were turned out into a paddock. Cattle had just been taken out of the paddock and H. bovis being present attacked the calves. The animals made the initial effort to dislodge the fly, then stampeded and tried to get away from the enemy by getting into a small water barrel together. Driven from this they hid in a corner behind some boards. Flies finding them there, and striking a few times, they got up and ran as if possessed. Cattle cannot fear the fly because of a belief of future trouble. It cannot cause pain because it has no organs capable of piercing the skin. Other insects do not cause cattle to "gad." Other insects cause anger rather than fear. Animals at play or after having been roughly handled may give evidence of "gad." H. bovis is much rougher than H. lineatum in its attack and lays one egg at a time. II. lineatum may not even be felt when its eggs are deposited.

The passage of the larvae of H. bovis into the skin was proven by cutting circles in the hair around new laid eggs, and later, after the eggs had hatched, finding the swellings underneath the skin. Hewitt's observations on the penetration of the skin by the larvae are thus confirmed. The swellings do not show so much exudation as in the case of H. lineatum and they seem rounder and more raised. There is not so much swelling or dermatitis of the skin in These differences in lesions are caused by the difference in the laying of eggs. H. lineatum deposits several on one hair. H. bovis generally lays one. The amount of damage done depends upon the bacteria entering the lesions and the resistance of the animal to them. Swellings and skin lesions from both species of larvae are confined almost entirely to the older animals. No appreciable lesions have been noticed below the knee or hock. H. bovis does not lay as many eggs around the hoof as does H. lineatum. As a result there is less lameness from H. bovis.

HAYDEN.

## ASSOCIATION MEETINGS

### AMERICAN VETERINARY MEDICAL ASSOCIATION

## SECOND REPORT OF THE SPECIAL COMMITTEE FOR THE DETECTION OF GLANDERS.

E. B. Ackerman, Chairman.

Adolph Eichhorn.

C. D. McGilvray.

Charles Cotton.

Charles Keane

John Reichel, Secretary.

This committee submitted its first report at the Fiftieth Anniversary Meeting of the American Veterinary Association New York City in 1913. The report included the following outline regarding a complete study of the disease.

- 1. Cause, variation in virulence.
- 2. Animals susceptible.
- 3. Period of incubation.
- 4. Modes of infection.
- Manifestations; symptoms; prognosis.
- 6. Diagnosis: Mallein-subcutaneous; ophthalmic; cutaneous; laboratory-cultural; animal inoculation; blood tests; conglutination; precipitation; agglutination; complement-fixation.
  - 7. Differential diagnosis, clinical and laboratory.
  - 8. Pathological anatomy.
  - 9. Quarantine-clinical, occult and exposed cases.
  - 10. Disposition-clinical, occult and exposed cases.
  - 11. Treatment.
  - 12. Disinfection.
  - 13. Re-testing and subsequent control.
  - 14. State and Federal regulations.

With the duties of the committee confined to the study of the modern diagnostic methods to determine the best method for the reduction of glanders, that portion of the outline dealing with the diagnosis received first consideration and the first report of the committee was practically confined to a brief review of modern diagnostic methods. After three years, these methods have been subjected to the test of time, and it is imperative, at this time, to review the substance of the first report before continuing with the consideration of the best methods for the reduction of the disease.

- 1. Cause. The bacillus mallei described by Loeffler and Schütz in 1882 is not only the undisputed and accredited specific cause of glanders, but it is a type of organism fairly constant in its characteristics. The variation in virulence of infective strains largely accounts for the various clinical manifestations of the disease. Aside from this difference in virulence the cause of glanders conforms to but one type with the usual cultural characteristics.
- 2. Animals Susceptible. Under natural conditions the disease is one of equines and occasionally among carnivora, particularly those confined to Zoological Gardens and fed on infected meat. Man is not infrequently a victim from direct contact with the infection.
- 3. Period of Incubation. Following natural infection there is a distinct period before the development of the most occult signs of the infection which varies with the degree or size and virulence of the infective dose. The fact that this period may vary from several days to weeks emphasizes the importance of repeatedly examining animals that have been exposed at intervals of 8 to 15 days preferably 8 days. In the interval of 8 days animals with no occult signs of the disease may develop some of these signs and an animal with any appreciable occult positive sign can never be dealt with too soon.
- 4. Modes of Infection. Infection is invariably accounted for by contact with the infective material, secretions, particularly nasal secretions, directly or indirectly, and in the determination of the best method for the reduction of glanders it is not a matter of importance how the infection enters the body.
- 5. Manifestations; symptoms; prognosis. Aside from the characteristic clinical signs, nasal discharge, nodule formation and ulceration, enlargement of the submaxillary lymph glands, cording of the lymphatus and fluctuations in temperature range, at least two types of occult signs should be accepted as manifestations of this disease, the allergic reactions as brought by the various mallein tests and the appearance in the blood of specific antibodies revealed in the blood tests. The insidious character of the disease emphasizes the importance of accepting these occult signs of the disease as seriously as the clinical manifestations and the prognosis as far as an animal is concerned should never arise as a question, in the best method for the reduction of the disease.

#### 6. Diagnosis.

A. Clinical Diagnosis

B. Mallein Tests

- (a) Subcutaneous
- (b) Ophthalmic(c) Cutaneous
- (d) Palrebral

C. Laboratory Diagnostic Methods

(a) Examination of Secretions

I. Microscopic

II. Cultural

III. Animal Inoculation

(b) Examination of Blood

- I. Precipitation Test II. Agglutination Test
- III. Complement Fixation Test

IV. Conglutination.

A. Clinical Diagnosis. The cardinal manifestations may be enumerated as follows: characteristic nasal discharge; nodule formation or ulceration, enlargement of the submaxillary lymph glands; cording of the lymphatus and fluctuation in temperature range.

B. Mallein Tests. Mallein first prepared by Hellman and Kalling in 1891 is the toxic substance produced in cultures by the Bacillus mallei. Pearson working independently prepared mallein and further proved that mallein like tuberculin produces a temperature rise in sensitized infected animals.

The name Mallein like tuberculin, abortion and kindred preparations, should be reserved to the final product obtained in the following way: one or more highly virulent strains which are capable of producing a characteristic orchitis in a guinea-pig in twenty-four hours following intraperitoneal injections, or death in four-teen days following subcutaneous injection, are transferred to a medium containing 1.5 per cent. glycerin in peptone bouillon and incubated for no less than six weeks at 37° C. The purity of the cultures and virulence of the strains should be determined before sterilizing the glycerin-peptone bouillon cultures. After filtering out the killed bacilli note the exact volume of the filtrate, and concentrate the filtrate to one-tenth of its original volume over a water bath. The resulting product represents, after it is filtered through a sterilizing filter, concentrated mallein or mallein.

Mallein Solution for the subcutaneous and palpebral test is mallein diluted with 3 volumes of a 0.5 per cent. carbolized salt solution.

Ophthalmic Mallein. Two forms of mallein are used as such;

precipitated or purified mallein is a dry powder obtained from mallein which has been precipitated with many volumes of absolute alcohol. After filtering off the precipitate, it is re-dissolved in normal salt solution precipitated again and washed repeatedly with absolute alcohol. The precipitate is finally dried over calcium chloride or sulphuric acid. A 5 per cent. solution is generally used. The keeping quality of the dry powder and of the 5 per cent. solution has been questioned, but it has been conclusively shown that when the sterility of both is assured they will keep as well as mallein which is a very stable product. (B.) Mallein, pure, undiluted, filtered and preserved with 0.5% carbolic acid is most frequently used as ophthalmic mallein.

Inasmuch as it has been conclusively demonstrated that the value of mallein can be materially affected by the action of bacterial contamination it is important that this be borne in mind in handling and using any form or dilution of mallein.

(a) Subcutaneous Mallein Test. Mallein Solution (Mallein diluted with 3 volumes of 0.5% carbolized salt solution) is injected and in the sensitized infected animal, this is followed by a characteristic temperature rise and a local and general reaction. characteristic temperature rise begins in from 4 to 8 hours and the maximum temperature is reached in from 10 to 20 hours with a gradual return to normal. At least two temperatures should be taken before the injection of mallein solution, three hours apart, and five temperatures after the injection beginning not later than the tenth hour continuing to the twentieth hour at intervals of not less than two hours. The smallest difference between the temperatures before and after injection should be 2.5°F., with a temperature rising to 103° or above. The local reaction appears in several hours as a hot, painful, oedematous swelling at the site of injection which may persist for several days enlarging considerably and gradually disappearing. Normal horses may show a local swelling which does not enlarge and rapidly disappears. general reaction is characterized by a lessened appetite, dullness, staring coat, muscle tremors, respiratory difficulties, altered pulse rate—one or all of which may or may not be present. This test while reliable when properly carried out and interpreted is not being used as extensively as formerly, inasmuch as some of the other tests, notably the ophthalmic test, is proving more practical and reliable.

Ophthalmic Mallein Test. This test has the advantage (b) of being simple, easy to apply, and the results are as trustworthy as any. The percentage of error is relatively small. The test has the advantage over the subcutaneous test in that an animal tested may be retested within 24 hours on the same or other eve, and the local applications of mallein in no way influence the results of subsequent blood tests or other mallein tests, should it be necessary to finally resort to any of them. The results of the ophthalmic test during the past five years fully justify the tendency for this test to replace not only the other mallein tests, but also the blood test resorting to these only in a confirmatory way. Before applying the test, examine the eye for conjunctivitis or purulent discharge. Should a conjunctivitis exist the eve test should not be tried. Take temperatures before the ophthalmic test. Fever need not hinder the test. Place 4 to 5 drops (0.1 to 0.2 c.c. for one test) of ophthalmic mallein undiluted mallein or 5 per cent. solution of precipitated mallein, within the lower eyelid with a dropper, glass rod or camel's hair brush. Nothing is put in the other eye because it serves as a control. The same brush or glass rod may be used from animal to animal. Great care should be exercised in the use of the brush or rod to prevent injury to the eye or subsequent irritation. It is a good precaution to use a separate brush or rod for each test and not dip the used brush or rod into the ophthalmic The unused portion of ophthalmic mallein should be dismallein. carded and a new series of tests started with a sterile product each time. Not only may a contaminated product prove worthless but the contamination may bring about false reactions. As soon as the mallein is applied a flow of tears nearly always appears with reddening of the conjunctiva and photophobia. These phenomena have no significance and disappear in several hours. The characteristic manifestations of a positive reaction begin after five to six hours and last thirty-six to forty-eight hours, sometimes longer. A purulent secretion or discharge with reddening of the conjunctiva alone is significant of a positive reaction. Swelling and glueing of the eyelids may be seen in severe reactions. The eye should be thoroughly examined and compared in good light sixteen to eighteen hours after the application of the test. The conjunctiva and the eyeball should also be examined after noting the discharge. Generally the positive reaction is not accompanied by a rise in temperature or a general reaction. A temperature variation does

not occur in negative tests on normal animals. In positive reactions the rise may be observed. The temperature should be taken twice—the first time just before the test is applied and the second when the readings are made sixteen to eighteen hours later.

The results of the test to be recorded and interpreted as follows:—

Eye unchanged	N	Negative
Seromucous discharge	S	Suspicious
Seromucous discharge with purulent flakes	P +	Positive
Distinct purulent discharge	P ++	Positive
Purulent discharge with	P +++	Positive
swelling of lower eyelid		
Purulent discharge with glueing together of both eyelids	P ++++	Positive

If twenty-four hours after the first application the result of the test is negative or doubtful it may be repeated at once on the same eye or the control eye. If the repetition is also negative or questionable the test can be repeated after the lapse of three weeks. It is particularly noteworthy that the percentage of error of the test is made up chiefly by infected horses with local or cutaneous lesions failing to react and for this reason emphasis is made on the value of a complete and thorough physical examination of every animal tested in one way or another and the weakness of the ophthalmic test in this respect to be borne in mind.

- (c) Cutaneous Mallein Test. In the cutaneous-dermo-intradermal mallein tests the concentrated mallein is applied with a knife or vaccinating needle, rubbed into a shaved area or injected into the skin. In the latter test a highly diluted mallein is used in preference to a concentrated mallein. In positive cases a spreading, warm, painful, and oedematous swelling will be observed in twenty-four hours. The reactions are positive when distinct visible swellings in contrast to the unaffected control areas develop. In severe reactions vesicular eruptions may appear. Since the skin tests are complicated and require special instruments, skill and practice, they have not proven practical.
- (d) Palpebral Mallein Test. This test is practically one of the forms of the intradermal test but since it is being extensively tried out at this time it will be treated as a distinct method. Mal-

lein solution in a 0.1 c.c. dose is injected directly into the horizontal fold of the lower eyelid, made with the left thumb and index finger, about 1 c.m. from the edge. A fine needle 10 to 15 mm. long is preferable, and the needle should be shoved into the skin of the eyelid about 3 mm. A small swelling may appear within a few hours, but this nonspecific swelling will disappear in 10 to 12 In a sensitized infected animal, the swelling will increase in from 10 to 12 hours and reach its maximum size in 24 to 36 The bulky oedema of the lower lid may even extend around and over the upper lid and almost completely close the eye. oedema is hot, and painful. The reaction may extend to the conjunctiva observed in congestion and mucopurulent discharge. At times the reaction is confined to the lower eyelid, the oedema is localized but persistent for 24 to 36 hours. A reaction seldom persists for more than 3 days. In doubtful tests the injection may be repeated in from 5 to 6 days. It is necessary to use a twitch or restrain the animal by other effective means when the injection is The comparative value of this test over other mallein tests is not established, but indications are that it is as reliable as the ophthalmic test, and more reliable than the subcutaneous test.

- C. Laboratory Diagnostic Methods. (a) Examination of secretions by microscopic or cultural methods or by animal inoculation are now obsolete methods of diagnosis although the demonstration of the bacillus in smears by the microscopic examination and isolation of the organism culturally or the demonstration of the presence of the infection by the injection of suspected material into male guinea pigs resulting in an orchitis or Strauss reaction and then the demonstration of the organism is positive evidence of the disease. Failure to reveal these findings, however, does not warrant a negative diagnosis.
- (b) Examination of Blood. I. Precipitation test, while of value in experimental work, particularly where the development of specific antibodies are noted after infection, is of little or no practical value. II. Agglutination Test: Depends upon the power of the undiluted immune serum to clump bacteria suspended in carbolized salt solution. The presence of agglutinins is determined quantitatively by using measured amounts of serum and test fluid. The readings are to be made after incubating the tubes and their contents for a half hour at 37°C. and centrifugalizing at 1600 revolutions for ten minutes and then allowing the tubes to stand at

room temperature for two hours. The same results may be obtained by incubating the tubes and contents at 37°C. for twenty-four hours and allowing them to stand at room temperature for twelve hours more. The appearance of a veil-like membrane with turned-in edges or small clumps of grayish-white or brownish flakes on the bottom of the tube may be regarded as a positive agglutination. A sharply circumscribed sediment in the center of the centrifuge tube having the shape of lentil seeds indicates an absence of agglutination. An agglutination value of over 1 to 1000 is indicative of glanders; but since high agglutination titers are obtained only in the acute form of the disease it is advisable to combine this test with the complement-fixation test and not make the diagnosis on the basis of this test alone.

III. Conglutination Test. Conglutination embodies two phenomena, agglutination of red blood corpuscles and hemolysis of the same. The test embodies the use of bovine serum, fresh horse serum complement, washed sheep corpuscles, Bacillus mallei antigen and serum to be tested. The technique is more difficult than the complement fixation test, as the chances of error are greater. The one advantage of the test over the complement fixation test is its possible application on serum from asses, mules and those horses with anticomplementary substances in the blood, and for this reason alone it is especially referred to here.

IV. Complement Fixation Test: This test has stood the test of time and along with the ophthalmic mallein test it is held as one of the two most reliable methods. Nothing has been developed to simplify the test and it remains a highly technical laboratory procedure in which the following take part:-Complement=normal guinea pig serum; sheep-rabbit amboceptor=sensitized rabbit serum with washed red blood corpuscles of sheep; glanders antigen-shake extract of killed glanders bacilli; sheep corpuscles and the clear serum of the suspected animal. The results of the test are interpreted as follows: horses in which the serum produces a complete fixation of the complement in quantities of 0.1 c.c. and 0.2 c.c. should be considered glandered. Horses in which the serum gives a complete fixation with a quantity of 0.2 c.c. and an incomplete fixation with 0.1 c.c. should likewise be considered glandered. Horses in which serum produces an incomplete fixation of the complement in quantities of 0.1 c.c. and 0.2 c.c. should also be considered glandered. Horses in which the serum shows no fixation of

complement in either tube should be considered free from glanders.

9-14. Control. In attempts at eradicating glanders from invidual stables, and also from infected localities, it is desirable that uniform methods of eradication be employed. Such regulations should provide for immediate action as soon as an outbreak is brought to the attention of the authorities. All infected animals should be destroyed without loss of time, and owners should be compensated for their losses, in order to encourage reports of any suspicious case. It is a well known fact that unscrupulous owners or dealers in horses dispose of infected animals to unsuspecting persons, and thereby spread the disease. With proper compensation for infected animals such practice is greatly reduced.

The best method for the reduction of glanders, in the opinion of the committee, may be briefly summarized as follows:-immediately upon the discovery of a suspected or an actual case of glanders the proper authorities should be notified, who should immediately quarantine and isolate the infected, suspected, and exposed Thereupon a careful physical examination should be conducted of all animals, and those showing clinical manifestations of the disease should be immediately destroyed. All other animals should be subjected to the ophthalmic eye test, and if practicable at the same time blood should be drawn for the application of the complement fixation test. The animals reacting to the eve test or blood test should be destroyed. Those which give an atypical or an indistinct reaction in the blood test should be quarantined for a period of 15 days and retested with the eye test at the end of that Should any animal on retest give a positive reaction it should be destroyed, and the remaining horses again subjected to a test after a period of 15 days, which test should be continued, with the same intervals, until no further reactions are obtained. The blood test (complement fixation) can be made a week after the first eve test and every 15 days thereafter between the time of the The blood test in between the eye test brings these animals under observation every week, which is an advantage,

Authorities should provide for the proper disposal of the destroyed animals. The skinning of the carcasses should be prohibited.

The stables in which glanders has been found should be thoroughly disinfected without any loss of time, the utensils, harness, etc., which might be contaminated should also be carefully disin-

feeted. The procedure of disinfection carried out should be as follows: all woodwork, such as mangers and partitions should be removed and burned. Rough surfaces should be scraped preparatory to disinfection. Wooden floors should be removed, and the material under the same should be scraped off and treated the same as the manure. Any parts of the stable which are not tight should be properly prepared in such a manner that the disinfectant will reach all exposed surfaces. Adherent particles on the walls and ceilings should be removed with the aid of wire brushes, and all parts of the stable should be so prepared that the disinfectant to be applied will reach all parts of the premises. Manure and other coarse litter, bedding, remnants of feed, etc., should be collected in one place outside of the stable, and disinfected with any recognized disinfectant, preferably with chloride of lime, 1 pound to 3 gallons of water, following which it may be spread over ground other than meadow land or land not to be plowed under. Care should be taken that the disinfecting fluid will thoroughly permeate all parts of the manure, collected litter, dirt, etc. Where this procedure is not practicable the manure may be burned or buried. The interior of the stable, after being prepared for disinfection, should be thoroughly disinfected with any of the recognized disinfectants, which may be best applied by a force spray pump, in order to assure a satisfactory penetration into all exposed parts of the building. Careful supervision of the disinfection should be exercised by a competent person. The following disinfectants are some that have proven satisfactory:-5 per cent solution of pure carbolic acid; chloride of lime U.S.P. strength, (30 per cent available chlorine), 1 pound to 3 gallons of water; formaldehyde 1 quart of 40 per cent to 5 gallons of water; 3 per cent solution of cresol compound U. S. P., or accepted substitute therefor, containing at least 50 per cent cresylic acid.

The stables in which the presence of glanders has been established should be continuously kept under veterinary supervision for a period of six months. After the destruction of all reactors horses remaining should be subjected to a modified quarantine, during which the animals may be permitted to work, but with a strict understanding that they can not be stabled at any place where other animals may become exposed, and they should also be prohibited from using public watering places.

The committee respectfully recommends that the association urge the sanitary authorities of the various states and provinces to formulate uniform measures for the control and eradication of the disease, since this committee is of the opinion that by adopting the procedure as outlined, and stringently enforcing above measures for the control of glanders, this disease may be successfully eradicated. It should, however, be recognized that sporadic attempts will not yield the desired results, and that it requires concerted action and persistent efforts to successfully combat the disease.

#### SECRETARY'S OFFICE A. V. M. A.

The following is the personnel of the committee appointed to serve as official tellers of the election of district members of the Executive Board:—Drs. N. S. Mayo, Chairman, A. H. Baker, L. Enos Day, D. S. Jaffery, George B. McKillip, John F. Ryan, and A. C. Worms.

At this writing—January 10th—between 1400 and 1500 votes have been cast. The polls close February 10th and the announcement of the successful candidates will appear in the March issue. The ballots have been stamped with the day of receipt and each day's quota has been sealed in a separate packet each evening without keeping even the slightest mental account of the trend of the voting. These packets will be opened for the first time by the above committee. The successful candidates will be notified by mail February 11th, and upon receipt of a letter of acceptance the tenure of each will begin.

Members who paid their dues after November 18th are not credited for their remittances in the new directory. The printer's copy was sent to the Editor of the Journal on that date and it was not found feasible to make changes thereafter.

The following errors in the new directory are hereby acknow-ledged:—Dr. Harrison Whitney, New Haven, Conn. should have been listed among the Fellows, having been in good and regular standing since 1891, and Dr. W. F. Crewe, Bismarck, N. D. should have been credited with the dues of 1916. The former error is due to an oversight and the latter is typographical.

L. A. M.

#### A TRIP SOUTH

Acting upon urgent invitations the secretary has visited several interesting meetings during the past month. The trip was made for the mutual benefit of the association, its southern members, the worthy practitioners of these states and particularly the local organizations themselves; for if there is any movement in this country today which merits help from outside sources it is that which brings the local practitioners of states, counties or cities together for mutual improvement. In this country where state rights prevent the nation from regulating intra-state affairs, the progress which interests the individual most must come from local movements. The state associations and the community organizations must therefore always be looked to for local progress. It is here the temporal welfare of the individual is promoted; it is here the personnel of the profession is improved socially, scientifically and financially; it is here the practitioner—the man—is guided along the straight path of professional ethics; it is here the laws under which we work and under which the nation lives are actually born, enacted and enforced; it is here the roots of the profession absorb the nourishing elements needed to maintain the life of a national organization; it is here, we must all agree, the national association finds its main support; and finally it is here the personal equation operates to cultivate the respect for one another upon which the pleasures and the profit of our professional life depends.

The first meeting attended was that of the Mississippi Valley Veterinary Medical Association at Galesburg, Illinois, January 5th. The sphere of influence of this live organization is over the central river counties of Illinois and Iowa. It has, however, more Illinois than Iowa members. This region includes within its boundaries such important cities as Peoria, Galesburg, Monmouth, Aledo, Burlington, Blandinsville, Little York, Avon, Sycamore, Prairie City, and Roseville, as well as the richest agricultural districts of both of these two great states. It is a thriving district. The hog, the cattle and the horse industries of this territory are probably not excelled anywhere, and its veterinarians are correspondingly prosperous and alive to the needs of the day. The membership is sixty in good and regular standing, more than half of which attended the meeting. The executive officers for the com-

ing year are: F. E. Brown, Blandinsville, Ill., President and W. Lester Hollister, Avon, Ill., Secretary-Treasurer.

The subjects discussed at the meeting were contagious abortion, verminous infestation of swine, hog cholera, mastitis of cows, strictures of the teat, and the difficulties of field surgery.

The paper of Dr. A. T. Peters read before the annual meeting of the Illinois State Veterinary Medical Association at Chicago, December 8th, 1916 in which incontrovertible success in the eradication of contagious abortion from herds had been obtained by internal treatment was argued pro and con at great length, and the relations of retained placenta to contagious abortion was also a subject of a long controversy. While nothing especially new was brought out the trend of the discussion showed that a serious study of this fell disease is now under way wherever resolute veterinarians meet. The statement of several members of unquestioned ability and experience that abortion exacts its greatest toll among cows infeebled by exposure, shipping, unbalanced ration or insanitary environments is worthy of reiteration and in a measure at least confirms the conclusions of Peters that supplying the tissues with elements lacking in the feeds of herbivorous animals is helpful in the management of the disease in a badly infected herd; but that such measures alone should not be depended upon to the exclusion of others known to be essential seems to have been the consensus of opinion.

In the discussion on mastitis of milch cows it was shown that cases threatening life or the udder with gangrene are best handled by free evacuation and drainage of the galactophorus sinus with an incision directly into it. By evacuating the stinking, purulent accumulation the temperature soon drops, the inflammation subsides and a state of good health rapidly ensues. The affected quarter is damaged less by this radical measure than if the inflammatory process had been left to run its rampant course through the gland. The surgical aperture heals before the next period of lactation which sometimes finds the gland restored, at least, to partial usefulness. Direct surgical extirpation of nodular obstructions of the teat were also recommended in the place of the old prodding and slitting operations, or the catheterization of the milk with teat siphons. It was shown that obstructions located along the teat duct can be ablated with impunity either through the meatus or else through an incision in the wall of the teat.

The hog industry of this community is so vast that the writer was much impressed with the conclusions about the best treatment of worms in swine. There are two plans of treatment discussed which were evidently regarded as standard, effectual, curative. The one is to give the herd of hogs continual access to a mixture composed of equal parts of coal screenings (fine) common salt and air slacked lime. This is placed in a common self-feeder whence the hogs can partake of the mixture ad libitum.

The best vermifuge for individual treatment applicable of course more particularly to small herds recommended was santonin and calomel. Two and a half grains of each is given to shoats in a capsule after eighteen hours of fasting. This is administered with a balling gun while the mouth is held open with a block of wood. Several hours later a purgative slop is given. This slop should contain about one ounce of magnesium sulphate for each animal. Being both thirsty and hungry they will drink this ravenously.

Late in the afternoon the members took the trolley for Monmouth (ten miles distant) where a clinic was held at the hospital of Dr. R. P. Frans. Here was found a modern veterinary hospital, of brick construction and cement floors, divided into a spacious office, a modern pharmacy and a neat, well equipped operating room. There was an operating table with a polished hard-wood top, a stocks, porcelain table and basins and large gas-heated sterilizer and a sink with running hot and cold water. The hospital has ample accommodations for many patients, in single stalls, double stalls, box-stalls of the usual dimensions and a large roomy enclosure for colics and for operating where casting with ropes is thought preferable to the operating table. The whole establishment is profusely lighted with electric lights, bright enough to turn darkness into daylight, which were needed, for the clinic lasted way into the night.

The cases exhibited were legion and exceptionally interesting to practitioners. There was a case of ventral hernia in a large draft horse, located along the costal margin eight inches below the transverse process of the lumbar vertebrae, the size of a cocoanut; a case of recto-vaginal fistula in a trotting mare; a mule affected with ringbone; a very bad case of bilateral stringhalt in a draft horse; three fistulae of the withers; a conjunctival carcinoma in a horse; a case of rupture of the tibialis anterior; and several horses

lame from various causes submitted for diagnosis. In all, it was a very creditable exhibition for a small association. With the exception of the recto-vaginal fistula which was pronounced incurable, all were submitted to operative treatment. While a description of these operations would be too voluminous for this report, the procedure against the ventral hernia being more unusual than the others is worth a little space. The flank was clipped and shaved before being brought into the operating room to avert the flying about of loose hairs around the operation. The field was disinfected with mercuric chloride and ethereal iodin. The skin layer of the sac was incised perpendicularly and dissected away from the inner (peritoneal) layer way down until the circumference of the aperture was entirely exposed. Then this layer was folded inward and firmly sutured in the folded position with a continuous suture running across the whole diameter of the aperture. lowing this the redundant skin was drawn up, edges out, and ribbed up also with a strong and close continuous crucial suture. Thus was formed a rib of peritoneum folded into the abdomen and one of skin to support it externally. A firm antiseptic pack and a strong abdominal bandage were then applied before the patient was placed again into the upright position. When upright this wrap was rearranged and instructions given to keep the patient on its feet for eight days, at which time the bandage was to be removed for dressing the wound and attending to the sutures.

The next meeting visited was that of the Mississippi State Veterinary Medical Association, at Clarksdale, January 9th and Clarksdale is a live modern city of 5,000, located in "The Delta." This region, once a worthless waste of unsalable swamps, has been developed into a very rich agricultural district with its land now at almost a prohibitive price. Its products are cotton, corn and mules with hogs and cattle as a small side issue, and there is a serene contentment reaching into every line of trade, commerce and professional life from the prosperity the high prices of these commodities have brought. The veterinarian has already shared in this prosperity, and with the state-wide tick eradication in sight the prospects of the profession are indeed bright. Even today it seems evident that Mississippi affords room for many more good vet-There are now only about a hundred graduates in the state and while these are harrassed somewhat by twice as many licensed non-graduates, the new veterinary practice act and other laws in the making promise to curb their activities in the near future.

The State Association has seventy-five members in good standing, more than half of whom attended the meeting. It was organized by a mere handful of practitioners in 1906, and each annual meeting has shown an increasing interest, an increasing influence and an increasing membership. It is through its influence that the veterinary practice act was enacted in 1914. The veterinary law of Mississippi compares favorably with that of the larger states. Its administration is in the hands of five veterinarians, three of whom are elected by the association and two appointed by the Governor. Applicants must be graduates of veterinary colleges recognized by the American Veterinary Medical Association, and must pass an examination.

The personnel of this board is now as follows: Dr. James Lewis, Greenwood; Dr. J. Á. Beavers, Canton; Dr. O. M. Norton, Greenville; Dr. W. P. Ferguson, Granada; Dr. W. L. Gates, Clarksdale. The officers of the association elected at the meeting were: Dr. Hudson Chadwick, President, Jackson; Dr. W. R. Edwards, Vice-President, Vicksburg; Dr. E. S. Norton, Secretary-Treasurer, Greenville.

The headquarters of the association were at the Hotel Alcazar, a new, modern hostelry that would do credit to a much larger city, and the sessions were held in the roomy dance hall of the Elks Club.

An interesting address of welcome by Hon. J. C. NcNair, Mayor of Clarksdale was responded to by Dr. W. P. Ferguson. Both these addresses were impressive and forecasted the serious attitude toward the work at hand that prevailed throughout the whole meeting.

The subject of choke in solipeds presented by Dr. E. M. Alderman was covered in the greatest possible detail in regard to its etiology and treatment. All of the important points about esophageal obstructions were brought out. He recommended particularly the radical operation when the palliative measures have failed. This operation is the washing out of the impacted mass through a stomach tube after arranging to prevent reflux of the water by ligating the oesophagus with a tape through an incision at the middle of the neck.

Prof. R. C. Moore, Dean of the St. Joseph Veterinary College, addressed the meeting at great length, giving a solemn sermon on

professional conduct and the attributes and accomplishments of a successful practitioner as a man and as a surgeon. This was responded to by the writer in a few remarks on "Field and Hospital Surgery." These addresses and the discussions that followed brought out the fact that the field surgery, once thought to be fraught with insurmountable obstacles against aseptic work, after all, is the cleanest surgery we do. A cleaned patient brought out and cast on a clean grass plot after a studious effort has been made to sterilize the materials to be used was pronounced to have at least equal advantages to the hospital where pus cases, air dust and "surgical dirt" are rampant.

The paper of Dr. W. H. Dalrymple and the discussion that followed, brought out a wealth of information on anthrax which seems never to have been heretofore reported. It was supplemented by the paper on serum treatment of anthrax by Dr. D. M. Davenport. These two papers, together with Dr. H. K. Wright's address on vaccination, covered the entire subject thoroughly. It must be remembered that anthrax is an important disease to the veterinarians of the Southern States, more particularly of Mississippi and Louisiana, where it has been rampant and an animal scourge for a good many years. It is evident, however, judging from the trend of these discussions that vaccination, serum treatment and sanitation is doing much toward controlling it. Dr. Dalrymple laid particular stress upon the importance of sanitation which, after all, must be depended upon as the chief measure by which it can be controlled. The paper of Dr. Dalrymple proves conclusively that the carcasses of animals dead of the disease are the chief menaces and are the media through which it is carried about by different animate and inanimate agents. It was brought out that the immediate destruction of carcasses by incineration, would in itself actually control anthrax, and that where this measure has been taken on large plantations the disease no longer occurs.

Another interesting paper was that of Dr. H. Chadwick, President-Elect of the association, on tick eradication in Mississippi. This work began nine years ago and since that time 51 counties have been released from federal quarantine, 12 of which were during the last year. It was recommended in this paper, as well as in the discussion that followed, that progress in tick eradication demands that cattle should be dipped in arsenical solution every 14 days,

What tick eradication means to the State of Mississippi is shown in the fact that the state during this campaign had started 16 creameries, has seven thousand head of pure bred bulls, and many show herds that acquit themselves very creditably in the state shows of the northern states. The statement made by one of the members is worth reporting—that in the little town of Westpoint, Miss., where cream separators had never before been known, 75 of these were sold by a single hardware man during the last six months.

According to records available there have been 491,251 dippings of herds representing 4,832,240 dippings of cattle. There has been 257 county and 14 state inspectors engaged in this work, an outlay of \$13,146.00 by the state and \$121,254.00 by the various counties engaged in the work. 7,652 square miles of territory during the year were released from federal quarantine.

This work has been done at a minimum cost of 46 cents per head for freeing the cattle of ticks, or \$11.59 per square mile of territory released from federal quarantine during the year just closed. 3,577 vats were in operation during the past year. Marked progress has been made in the counties doing clean-up work (that is, in the counties which have been previously released from federal quarantine) but in which there still remain some herds that are under local quarantine. In the counties in which tick eradication is to be conducted during the coming season, more than 1000 vats have already been built, and from all indications they will be ready to begin regular dipping by March 1st, 1917. Every one was profuse in his comments of the hearty co-operation of the federal forces in Mississippi.

On the morning of the 5th, the meeting was convened at the hospital of Dr. W. L. Gates, where more than 40 cases of mules, horses and swine were assembled for a medical and surgical clinic. There were medical and surgical cases of many varieties; fistulae of the withers, hernias, cryptorchids, and various forms of lameness.

Dr. Gates' Hospital, which is a fair specimen of hospitals in southern cities, is a spacious building divided into offices, single stalls, box-stalls, paddocks, mule pens, and an operating room, all of which are very creditably equipped. It is in fact the largest veterinary hospital the writer has ever had the privilege to visit in a city as small as Clarksdale. Those who operated and lectured at

the hospital were Dr. S. L. Stewart, of Kansas City Veterinary College; Dr. W. L. Gates; Dr. John Oliver, of Columbus, Mississippi; Dr. O. M. Norton, of Greenville, Mississippi. The principal interest in this clinic seemed to center upon the best surgical technique of fistula of the withers.

The annual banquet of the association, which was held at the Alcazar Hotel on the evening of the 10th, we were unable to attend on account of the necessity of making train connections for Little Rock, Ark., where the Arkansas association was to meet the following day.

The meeting of the Arkansas Veterinary Medical Association was convened at the Marion Hotel, Little Rock, Arkansas, on the morning of January 12th. The officers of the association are Dr. Geo. Temple, President; Dr. R. M. Gow, Secretary; Dr. Gow is also State Secretary for the American Veterinary Medical Associa-This association has 32 members, of whom twenty-five attended the meeting. As there are only 32 graduated veterinarians in the whole state this is an exceedingly high percentage of attendance to a state association. Until last year there was no law regulating the practice of veterinary medicine in this state, but through the energetic efforts of this association, a law was enacted This law created a Board of Veterinary Examiners to whom its administration is intrusted. The personnel of this board is Dr. R. M. Gow, Secretary; Dr. B. Merchant and Dr. Geo. Temple. The first session of the association was devoted to the discussion of the livestock sanitary problems of the state, in which Dr. S. L. Stewart and the writer participated. The subjects discussed were: vesicular stomatitis, tick eradication, milk inspection and shipping There have been several outbreaks of the former disease at different parts of the state due to the shipment of exposed animals from the various remount stations of Missouri and Nebraska. The dangers of mistaking this rather harmless affliction for footand-mouth disease was emphasized, but more stress was placed upon the dangers to the horse industry from shipping fever which is being spread out into the plantations of the state by the shipments of exposed and affected horses originating in the large horse markets. The needs of stock yard and car disinfection for the purpose of controlling shipping fever was thought to be the one important factor upon which the eventual control of this disease must depend. S. L. Stewart and the writer gave a stereopticon lecture illustrating the clinical aspects of vesicular stomatitis. In addition Dr. Stewart gave a very interesting stereopticon lecture on navel-ill of colts.

Dr. Herbert Shull, municipal inspector of Texarkana, spoke at length on the subject of city milk inspection, and Dr. A. E. Wight, Federal Inspector of the Bureau of Animal Industry, engaged in tick eradication in the state of Arkansas, spoke on his work and the progress that has been made toward state-wide eradication.

The status of tick eradication in Arkansas was reported by Dr. A. E. Wight. When the work was started in a small way in 1907, the entire state was below the federal quarantine line. In 1911, many dipping vats were constructed by the people and arsenical dippings were used that year to a considerable extent. time dipping vats have been constructed in every county in the quarantined area, so that today there are about 1500 dipping vats in existence in the state. These have been built by the people, as in the state there are no public funds as yet appropriated for the use in construction of dipping vats. Twenty-three counties and part of eight counties in the northern part of the state have been freed of ticks and released from federal quarantine. This means about 45 counties in the quarantined area but in these counties a large amount of preliminary work has been completed, so that several of these counties are already to take up systematic work. There are now 18,268 square miles of territory released from quarantine, or putting it otherwise 35 per cent of the whole state. The veterinary association is looking to the present legislature to pass legislation necessary to the promotion of this work and to hasten state-wide eradication. It is the aim of the federal and state authorities engaged in this work that the state should be free in the year 1919.

Tick eradication in Arkansas is conducted in two districts the northeast district and the northwest district. Cattle are taxed five cents per head per year to raise money for the purpose of employing inspectors to work in co-operation with the United States Bureau of Animal Industry.

During the year 1916, five whole counties were released from federal quarantine after one year's work, and this has demonstrated the fact that ticks can be eradicated in Arkansas in one year from the time the work begins. The cattle were dipped every 21 days throughout the season and about 85,000 head were dipped each month. In the future it is planned to dip the cattle every 14

days during the season as is now the custom in Mississippi and other states.

Farmers throughout the infested area are becoming more and more interested in tick eradication and are offering less opposition. In fact the opposition against tick eradication in southern states is fast disappearing. Those who are in charge of the work feel confident that the job can be completed within three or four years. The great stimulus to this work is the improvement that is seen in the stock of the tick-free territory where Pure Bred Cattle Associations are being organized and many good cattle introduced from the northern states. Cattle in the free counties are worth from one to two cents per pound more than those in the infested counties, and there is a ready market for all the live stock that can be pro-The great advantage is that they can go to any market in the country without restriction. One county in the State of Arkansas that was freed from ticks in 1916, has shipped 60 carloads of cattle since last September at an increase of about \$200 per car, and there are 10 or 12 cars of cattle on feed in that county.

In the afternoon the association convened at the office of Dr. H. C. Rice, 710 Broadway Street, where a clinic was held. This hospital is a large one story building with a 100 foot frontage. is the custom in this part of the country it has a ground floor and a wide aisle between the stalls. The enclosures for animals are large paddocks, box-stalls, single stalls to the number of about 100. There is also a large operating room in a separate enclosure equipped with an operating table, cement floors and a good supply of instruments and other apparatus needed for surgical work. There are also accommodations here for the treatment of a great many Canine practice seems to be no small part of the work of a veterinarian in this city. Only two animals were operated upon at the clinic-poll-evil, the other was a recent ventral hernia. Dr. A. L. Hearn of Texarkana, was elected president; Dr. R. L. Pryor of Clarksville, Vice-President and Dr. R. M. Gow of Little Rock, was re-elected Secretary-Treasurer.

In closing we should not omit mention that Dr. Gow, with whom the veterinarians of America have just become acquainted, is a mighty busy man. His personality is being felt everywhere that veterinary work is undertaken. He is State Veterinarian of Arkansas; Secretary of the State Board of Veterinary Examiners; Secretary-Treasurer of the State Association; State Secretary of

the National Association, and Secretary of the Arkansas Stock-breeders' Association, an association maintained for the mutual benefit of breeders of all kinds of livestock. With Dr. Gow at the helm it is very safe to predict that progress in veterinary and livestock affairs in Arkansas will not lag.

The trip was undertaken with certain definite ideas in view:

First: to determine the attitude of southern veterinarians toward the American Veterinary Medical Association, especially to find out if the association is doing its full duty toward the members in this section of the nation.

Second: to study at close-range the problem of quackery in the southern states. It seems to be a real menace to the progress of the veterinary practitioners and official veterinarians in these states. The states of Mississippi and Arkansas were thought best for this purpose. The first is taken as the state in which the best conditions exist in the south and the second is the one in which conditions should be at their worst. In Mississippi there are two quacks to every graduate veterinarian, while in Arkansas they show there at about five to one. I take it without being positive, however, that between these two extremes the actual condition of the rest of the southern states would be reflected.

Third: to get first hand information about tick eradication and the prospects its culmination holds out for the veterinary profession.

Fourth: to investigate the conditions under which veterinarians of the south must practice, in regard to the value of animals, weather conditions, roads over which they must travel, compensation for their work, and the prevalence of disease which call for veterinary service.

In regard to my first object, I find contrary to expectations and reports which had reached the office of the secretary, that a more friendly attitude toward the American Veterinary Medical Association does not exist anywhere on the continent, for in spite of direct inquiry and direct observation not a word of complaint was heard from either members or non-members about the National Association. The failure of the National Association to meet in New Orleans in 1914, which was once criticised by some of the southern members, seems no longer to be the source of complaint, in view of the prospects of holding a meeting in this section of the country in the near future.

In regard to the problem of quackery: we believe that the south is in no different position than other states have been during the development period of the veterinary profession, for here are large states with a spare livestock population, where whole counties have no veterinary graduates; where livestock is not vet very valuable, corresponding to pioneer conditions in the northern states. Here we find, as in the northern states that the new veterinary laws passed for the purpose of restricting quackery, meet with the same bitter opposition, and it is very evident that this opposition will prevail and continue until the profession is numerically strengthened with graduate members, and this cannot, of course, come to pass until the livestock interests have developed beyond their present limits. It seems rather evident that this progress must wait for state-wide tick eradication, which, once in reality, will soon make the southern states a veritable haven for the vet-The land of Mississippi and Arkansas seems to compare in fertility very favorably with that of the central counties in Illinois and Iowa, where it is selling for \$200 to \$300 per acre and where the human and animal population is more concentrated. With ticks eradicated from these states they will, acre for acre, excel Illinois and Iowa in almost every count.

With no other assurances than that of Dr. Chadwick of Mississippi, and Dr. Wight of Arkansas, it is safe to advise the young men who are now graduating at our veterinary schools to "Go south and grow up with the country."

L. A. MERILLAT, Secretary.

# SOUTHEASTERN STATES VETERINARY MEDICAL ASSOCIATION, ATLANTA, GA.

Dec. 27th and 28th, 1916

In the absence of the temporary chairman, Dr. C. A. Cary was nominated and elected to fill the chair. Dr. G. A. Roberts was first called upon to state briefly the purposes of the new organization, which were:

Promotion of acquaintance and good fellowship among the members of our profession in the southeastern states.

The popularizing of our profession in the eyes of the public and our clients. Enhancing our own "preparedness" through exchange of ideas.

Affording every veterinarian within the described territory an opportunity to serve his profession in a larger measure than through his state association alone.

Dr. N. S. Mayo then presented his paper on "Some New Therapeutic Suggestions". He mentioned specifically many uses of the newer preparations of emetine, lobeline and chlorazene.

The temporary chairman, Dr. Cary, next presented his paper on "Operations for Abdominal Hernias". He illustrated his paper by drawings on the blackboard. He advocated correct diagnosis and operating under complete anesthesia. His method was to dissect around the sac removing the same but leaving at least one-half inch of the base around the ring for a granulating surface. Stitches of heavy silk were put in and the ring closed by them. Drainage was supplied and a many tailed bandage put on.

After dinner, the chair called for the paper of Dr. B. F. Kaupp, on "Healing of Fractures in Fowls". He discussed the subject from three view-points, namely: the histology and regeneration of bones, reparative processes and setting of the fracture and care of the bird.

At this juncture, Mayor Woodard, of Atlanta, put in his appearance and was called upon for an address of welcome. He assured us that we were welcome and that he was delighted to make his farewell greeting to Atlanta as mayor, to so worthy a calling as the veterinary profession.

Dr. Mayo happily responded to the address of welcome urging better training for the veterinarian and holding up the ideal through a thorough examination, but not an unreasonable one, by the State Examining Board.

Dr. J. W. Salter followed with his paper on "Open Joints in Equines". He took the position that thorough cleansing of the surrounding parts was good treatment but that no material of any kind should be injected into the joint nor any probing permissible.

Dr. G. A. Roberts next presented his paper on "Contagious Abortion' Infections in Animals". He contended that while there was a possibility of attributing too much from such infections, by some, the average veterinarian did not begin to appreciate the full significance of such infection. Again, while the attributed results

of such infections might possibly also occur from other causes, the most satisfying explanation for such results was on the theory of infection.

Dr. M. R. Blackstock then read his paper on "Cotton Seed Meal as a Feed". He reminded us that a quantity of one quart twice daily mixed with other feeds to average sized cows was a useful and safe feed. However, he believed excessive feeding of cotton seed meal might be responsible for some abortions and many retained placentae.

"Hemorrhagic Septicemia of Cattle" by Dr. F. P. Caughman proved a very entertaining paper, dealing with prevalence of the

disease, types and citations of several outbreaks.

The last paper of the first day's meeting was by Dr. D. A. Piatt on "The Veterinarian and Some of His Problems". Among the more or less difficult problems of the veterinarian, he stated, was that of collections. He gave us several unique suggestions as to the character of "follow-up statements".

At this point, the association went into a business session. They adopted constitution and by-laws and the following resolutions were accepted:

- 1st. Resolution of condolence to the temporary secretary, G.
  A. Roberts, in the recent loss of his beloved wife.
- 2nd. Resolved that the Southeastern States Veterinary Medical Association in regular annual meeting assembled, urge the A.V.M.A. to hold their 1917 meeting in the City of Atlanta, Ga. Nothing that the A.V.M.A could do would have a more uplifting influence on the profession in the South than to grant this urgent request.
- 3rd. Resolved that the committee recommend Chattanooga as the next place of the annual meeting.
- The following officers were elected for the ensuing year:

President-Dr. C. A. Cary, Auburn, Ala.

First Vice-President—Dr. F. W. Morgan, Chattanooga, Tenn.

Second Vice-President-Dr. J. W. Schiebler, Memphis, Tenn.

Third Vice-President—Dr. Benj. McInnes, Charleston, S. C. Secretary-Treasurer-Dr. G. A. Roberts, Raleigh, N. C.

To serve with the above as executive committee:

Dr. M. R. Blackstock, Spartanburg, S. C.

Dr. W. W. Webb, West Point, Ga.

#### RESIDENT STATE SECRETARIES:

Alabama—Dr. D. A. Piatt, Birmingham
Florida—Dr. Major Scofield, Miami
Georgia—Dr. P. F. Bahnsen, Atlanta
North Carolina—Dr. A. C. Jones, High Point
South Carolina—Dr. F. P. Caughman, Columbia
Tennessee—Dr. Wm. M. Bell, Nashville
Mississippi—Dr. E. M. Ranck, Agricultural College.

It was voted to leave the list of charter-membership open for ninety days.

Drs. D. M. Campbell and N. S. Mayo of Chicago were elected to honorary membership.

An enjoyable banquet was held at the Piedmont Hotel after which the theatres were patronized liberally by the association members.

The first paper presented on the second day was "Interstate Health Certificates" by Dr. P. F. Bahnsen. He urged fair but reasonable charges to be made for examinations and that all veterinarians making such examinations should consider themselves agents of the state into which shipment was to be made, and be willing, therefore, to comply with such states' requirements. He stated that Georgia would accept a hog breeder's certificate sworn to by a notary public; that serum injection had been made not more than fourteen days previous to shipment and not less than three weeks after the simultaneous injection.

Among the more interesting papers of the whole program was that of "Some Legal Phases of Veterinary Practice" by Dr. D. M. Campbell. The good points mentioned in his paper are too numerous to note here, but we hope all will have opportunity to read his entire paper when published.

The last paper on the program was "The Veterinary Profession and its Future" by Dr. S. O'Toole. He insisted on good preparation at college, efficient control by State Boards and a high ambition of all members of the profession.

A goodly number of veterinarians in attendance spent the

second afternoon in observing hospital cases of Dr. H. W. Burkland at the Atlanta Stock Yards.

The meeting was attended by something like sixty veterinarians and all present expressed themselves as greatly pleased and agreeably surprised at the number present and the interesting program.

G. R. ROBERTS, Secretary.

## MISSISSIPPI STATE VETERINARY MEDICAL ASSOCIATION

The annual meeting of the Mississippi State Veterinary Medical Association, held at Clarksdale on January 9 and 10, 1917, was without a doubt, the best ever held in the state for the papers and addresses, the large clinic at Dr. W. L. Gates' hospital and the entertainment by the city of Clarksdale could not be excelled.

The members met at the Elks Club Tuesday morning at 9 A. M. where the Mayor, Hon. J. C. McNair welcomed us to the city with a short address which was ably responded to by Dr. W. P. Ferguson, of Grenada. Dr. E. M. Alderman then read his paper on Choke in the Horse. Dr. R. C. Moore gave an address on the Requisites for Successful Surgery and was followed by Dr. L. A. Merillat on Field and Hospital Surgery who claimed that Dr. Moore had taken all the thunder that he had prepared. Dr. Moore and Dr. Merillat gave well prepared addresses covering the field of surgery in a very thorough manner.

At the afternoon session Dr. John Oliver read a paper on The Surgical Treatment of Hernias. Dr. B. M. Davenport gave a report of the Serum Treatment for Anthrax prior to Dr. W. H. Dalrymple's paper on Anthrax. Dr. Dalrymple covered the subject of Anthrax and his paper was thoroughly enjoyed by the members, especially those in the sections of the state where anthrax was prevalent last year.

Owing to sickness, Dr. N. C. Nelson was not present but Dr. H. K. Wright of Mulford & Co., replaced him. Dr. Wright told us about the preparation of hog cholera serum and took up the various phases of vaccination. Dr. H. Chadwick spoke on Tick Eradication and What it Means to the Veterinarian. We were told of the work and the difficulties that had been met and that by January 1918 the State of Mississippi would probably be free from the Texas fever tick.

Dr. S. L. Stewart gave an interesting address on Navel Ill, illustrating his paper with lantern slides showing the various conditions that were met with in the disease.

Tuesday Night, Jan. 9th, 1917. Business Session. We were called to order by the President, James Lewis. Twenty-four of our forty-eight members responded to the roll call. Owing to the length of the minutes they were approved without reading. The treasurer then gave his report showing a balance of \$135.89 in the treasury.

The President's address reviewed the veterinary situation in the state. Dr. Lewis mentioned especially the fact that the County Farm Demonstrators and members of the Medical Profession were doing a great deal of practice.

The executive committee then gave their report and recommended for membership the following men who were elected viz:—R. H. Mohlenhoff, C. W. Denman, A. I. Jones, J. W. Burras, F. L. Parse, B. T. Huston, C. McMillian, T. S. Mason, W. J. Lacy.

Considerable discussion was brought up about the Farm Demonstrators, the students of the A. & M. College and the members of the medical profession vaccinating live stock for anthrax, cattle for black leg, testing cattle for tuberculosis, using virus for the simultaneous vaccination of hogs, castration of colts, etc. The matter was finally dismissed by the President appointing Dr. J. A. Beavers, Dr. W. P. Ferguson, and Dr. John Oliver to draft resolutions to present to Mr. R. S. Wilson, in charge of the County Farm Demonstrators in Mississippi; P. P. Garner, President of the Miss. Livestock Sanitary Board and the President of the A. & M. College and also a copy to be presented to the veterinary journals for publication.

Dr. James Lewis of Greenwood and Dr. J. A. Beavers of Canton were elected to serve four years on the Examining Board. The following officers were elected to serve the association for the coming year:—Dr. H. Chadwick, Pres.; Dr. W. R. Edwards, Vice-Pres.; Dr. E. S. Norton, Secy.-Treas.

By vote it was decided to hold the next meeting on the second Tuesday and Wednesday, January, 1918 at Meridian, Miss.

Wednesday, Jan. 10, 1917. Clinics. The entire day was used in clinical work. Some thirty-five animals were gathered together by Dr. Gates for operations and diagnosis. Following are the operations performed and the veterinarian performing the same:—

Gray horse mule—Fistula on inside of right hind leg between hock and stifle joints by Dr. O. M. Norton.

Bay Gelding-Fistula of withers by Dr. L. A. Merillat.

Bay horse mule—Fistula of withers by Dr. L. A. Merillat.

Sorrel Mare—Tenotomy by Dr. John Oliver.

Black Mare—Ringbone by Dr.-L. A. Merillat.

Bay Mare—Extracting teeth and trephining sinus by Dr. L. A. Merillat.

Bay Mare-Spavin-Acuneon tenotomy by Dr. L. A. Merillat.

Pig-Double scrotal hernia by Dr. S. L. Stewart.

Gray mule-Fistula of withers by Dr. John Oliver.

Ridgling boar by Dr. Merillat.

Fistula of withers by Dr. John Oliver on mule.

Dog-Removal of eye and replacing with glass eye by Dr. John Oliver.

The balance of the clinic was for diagnosis and treatment. Dr. Gates showed us a mule that had been giving milk for about two years. There were several cases of lameness, one horse with sleepy staggers, a horse with a broken hip, one horse with cyst in the gluteal muscles, a mule with crooked feet, a dog with mange, etc.

The banquet at the Alcazar Hotel brought the meeting to a successful close and it was voted by the members that this was the best meeting that we had ever held.

Drug and Instrument displays by Sharp & Smith, The Abbott Laboratories, H. K. Mulford Co., and John T. Milliken & Co., were present. These displays were large and appropriate and received much favorable comment by the members.

E. S. NORTON, V.M.D., Secretary.

### SOUTHERN TIER VETERINARY MEDICAL ASSOCIATION

The third semi-annual meeting of the Southern Tier Veterinary Medical Association was held at Binghamton, N. Y., December 30, 1916. During the morning an interesting clinic was held at the Hospital of Dr. P. J. Axtell, after which the members had luncheon at the Hotel Bennett.

The afternoon session was called to order by President Pearce at 2:30. Thirty-three members and visitors were present. In the absence of Dr. Fitch, Dr. H. J. Milks was elected temporary secretary.

The following papers were given:

President's Address-Dr. C. D. Pearce, Binghamton.

The Limitations of the Use of Tuberculin-Dr. V. A. Moore, Ithaca.

Veterinary Practice in the State of Washington-Dr. J. H. Woodside, Groton, N. Y.

Some Recent Applications of Physiology to Veterinary Science—Dr. C. E. Hayden, Ithaca.

A Discussion on Azoturia—Drs. Faust, G. A. Knapp, Stone, Vorhis and others.

The following motions were passed:

That a committee be appointed to investigate the subject of associate members.

That the proceedings be published as usual.

That the next meeting be held at Elmira.

There was also considerable discussion of the plan of the meeting but no definite action was taken upon this subject.

Meeting adjourned.

H. J. Milks, Secretary Pro. Tem.

The following cases were examined and treated at Dr. Axtell's, 65 Carroll Street, Binghamton at 9:30.

I. Fistula in the right side. Brown Gelding, as result of infection from tapping about two months previously. About two quarts of pus were let out and wound and abscess cavity packed with iodin gauze. Operation by Drs. Faust and Axtell.

II. Dog. Chronic case of distemper, examined and prescribed for by Dr. Quinn of Norwich.

III. Sorrel Gelding. Diseased third superior molar. Trephined and punched out by Drs. Baker and Knapp, under chloral narcosis and cocain anesthesia.

IV. Black Gelding examined by Drs. Frost, Baker and others. Adhesion of the penis to the prepuce and necrotic abscess Nothing done in the way of treatment.

V. Brown Gelding, Paraphimosis of penis. Operated on by Drs. Frost and Harding. Amputation performed under chloral narcosis and cocaine used locally. Operation successful.

VI. English Setter Dog. Tumor in side of neck anterior to point of shoulder. Tumor about size of goose egg. Operated by Dr. Milks under morphine narcosis. Some trouble was experienced with hemorrhage. The yagus nerve passed over it so it had to be dissected away carefully. A very nice operation when completed. Dog died from trouble with vagus nerve, January 3rd, 1917.

VII. Two Year Old Heifer. Sterility, cystic ovary. Cyst ruptured and uterus irrigated by Dr. Knapp.

VIII. Cow. Cornual pregnancy. Fetus about size of a cat. Situated far up in the cornu of the uterus. Impossible to be reached through the uterus, could be felt plainly through the rectum, but not movable in the horn. The peculiar thing of this case was the absence of the corpus luteum in the ovary. Examined by Drs. Frost, Knapp and Faust.

Cow is being washed out daily with hopes of washing the fetus away. The condition has existed for six months. Cow in fairly good condition but with a bad fetid discharge.

All cases doing very nicely up to the present time, with the exception of the dog as previously stated.

P. J. AXTELL.

# THE NINTH CONFERENCE FOR VETERINARIANS, ITHACA, N. Y.

The conference was held January 16 and 17 at James Law Hall, the main building of the New York State Veterinary College. Dean Moore, in his opening address: "Opportunities for the Average Veterinarian", among other things, called attention to the fact that the veterinarian should be a factor in legislation; that he should exert an educative influence upon animal owners and with their cooperation assist in formulating proper livestock sanitary laws.

Dr. Fitch's paper upon "Some of the Common Parasites of the Domesticated Animals and their Importance to Veterinarians", was of a practical and interesting character. He believed, in this connection, that a microscope was a paying investment for the veterinarian. A brief description of the more common parasites and their habitat was given with a very excellent series of lantern slides.

Illness prevented Dr. Reid Blair from giving his paper on "Tuberculosis in Carnivorous Animals." It was, however, read by Dr. Fitch. Attention was called to the growing importance of the disease in this class of animals, and its possible menace to the family.

Dr. A. R. Ward, of the Bureau of Animal Industry, in his paper on "Suppurative Lesions in Pigs and Cattle due to Bacillus pyogenes" emphasized its importance in suppurative processes. It was formerly thought to have a relation with swine plague. It is also associated with arthritis in pigs. Its relation with cattle is quite as important as pigs. The organism is frequently found in bronchopneumonia as well as in inflammation of the udder. The bacillus as well as the streptococcus may be concerned in mammitis. Bacillus pyogenes has also been found in keratitis.

Dr. Hayden, in his paper on "Salivary Digestion in the Horse", emphasized the fact that enzymes were found not merely as the products of the glands but that they were found also in certain secretions and excretions of the body, mentioning particularly the bile, urine and blood. He also suggested the importance of enzymes in connection with pathological processes.

The address on the "Relation of the Veterinarian to the Farm Bureau Work was given by Professor Burritt of the College of Agriculture. He referred to the development and history of the movement and the widespread and growing interest that is being manifested. In this state, there have thus far been harmonious relations and a spirit of cooperation between the veterinarians and farm managers.

The symposium on Poisoning Among Animals included two very interesting papers: one by Professor Harshberger of Pennsylvania on "Poisonous and Stock Killing Plants"; the other by Professor E. M. Chamot of Cornell on "The New Toxicology". Considerable interest was manifested and much discussion ensued.

In the absence of President Schurman, Professor W. A. Hammond, Secretary of the University Faculty, gave a very cordial address of welcome. This was followed by the principal address of the evening by Dr. John W. Adams on "The Veterinarian Himself, His Reputation and Success". Dr. Adams spoke in his usual happy way and advanced much valuable material for the reflection of his auditors. Dr. W. Horace Hoskins spoke in a dignified and eloquent manner of the services of the late Dr. Salmon, and urged renewed interest in the Salmon Memorial Fund. A smoker with light refreshments, closed the exercises of the first day.

The exercises of the second day opened with an interesting address by Dr. W. L. Williams on "Infectious Abortion". This was accompanied by a series of excellent lantern slides. It was

stated that it was not proven nor disproven that the bull conveys the disease, but there nevertheless seems to be some evidence to incriminate the bull. In the treatment of calves, he recommended the plentiful use of calf scours serum and enemas of salt solution.

The paper by Dr. Frost on "Formalin in the Treatment of Mastitis" was received with much welcome by the practitioners. His description of its successful use in a number of cases indicates that it is a valuable method of treatment.

In his paper on "The New Pharmacopoeia", Dr. Milks suggested the desirability of having veterinary representation upon the Board of Revision, and further pointed out interesting changes that had been made in the new edition.

The paper by Doctors Udall and Birch on "Diagnosis of Tuberculosis" was presented by Dr. Udall. It contained much valuable information and discussed in some detail the value of physical examination and the use of the sputum cup. The program was followed by meetings of the various alumni associations.

The afternoon was devoted to clinics and post-mortems in the surgical, small animal and medical buildings. The interest in the clinics was as keen as ever and it was apparent that much valuable and practical knowledge was gained. A number remained over another day to see the experimental farm where hog cholera serum is produced. A special demonstration of the method of using serum was given to a large number of veterinarians on Monday afternoon and Thursday morning.

The conference closed with a banquet at the Ithaca Hotel with 140 in attendance. Dr. Fish acted as toastmaster and introduced the following speakers: J. W. Adams, A. R. Ward, C. Way, G. S. Hopkins, Professor Savage and J. G. Wills.

In point of numbers this conference exceeded previous ones. The interest and enthusiasm exhibited indicated that in all other respects a high standard had been maintained.

P. A. F.

## THE MONTANA STATE VETERINARY MEDICAL ASSOCIATION

A hearty welcome was delivered to the association by Mayor Wilkinson when it convened at the Chamber of Commerce building at Missoula, January 5. State Veterinarian W. J. Butler responded to the address of welcome. The president's address was delivered by Dr. M. E. Knowles.

Much interest centered around the Symposium on Meat and Milk Inspection to which the general public was invited. An interesting event of the program was the luncheon given by the Missoula Chamber of Commerce at the Florence Hotel in honor of the veterinarians. More than 100 of the residents of the city met with the association.

William F. Wayne delivered the welcoming address. He praised the profession for the good work it was doing in preventing animal diseases and protecting mankind from becoming contaminated with those diseases.

Dr. M. E. Knowles, president of the association, told of the work of the profession and thanked the people of Missoula for their hospitality.

Dr. E. C. Anderson made a plea for the authorization of more far-reaching methods in safeguarding public health by the people through proper legislation. He also told of the work of the veterinarians along this line.

The future of Missoula as the center of the best cattle raising district in Montana was the theme of the talk by Dr. W. J. Butler, state veterinarian. He said that the valleys of this section of the state afforded protection for the animals, while the flat stretches furnished the pasture. In closing the doctor thanked the chamber of commerce for the use of the hall for the convention and the luncheon that had been tendered the members of the association.

It was voted that the next winter session should be held at Great Falls in January 1918. The names of Dr. A. D. Knowles of Missoula and Dr. O. J. Johnson of Miles City were selected for an appointment by the Governor to the State Board of Veterinary Medical Examiners.

#### MISSOURI VALLEY VETERINARY ASSOCIATION

The next meeting of this association will be held at St. Joseph, Mo., Wednesday, Thursday and Friday, February 14, 15 and 16. A permanent local committee has been formed with Dr. R. C. Moore as chairman, Dr. Stone as vice-chairman and Dr. B. R. Rogers as secretary. The chairmen of each committee meet at the veterinary college every Thursday evening up to the time of the meeting.

Every effort is being made to make this one of the most successful and valuable meetings of the Missouri Valley. The Commerce and Rotary Clubs and the veterinarians extend an invitation to any of the profession who may be in that locality to attend the meeting.

# THE FIRST ANNUAL CONFERENCE FOR VETERINARIANS AT AMES, IA.

The following program was prepared for the meeting held at Veterinary Division of the Iowa State College at Ames, January 11 and 12.

11 and 12.	
Anatomy and Physiology of the Udder of Cows	5. Murphey
Pathology and Bacteriology of the Udder W. W. Dimock and Cha	as. Murray
Judging and Types of Dairy CattleL.	. S. Gillett
Dairy Farm Sanitation. Illustrated	ssius Way
The Bacillus Abortus and Tests for the Detection of Abortion in Cat	ttle
Chas. Murray and L.	E. Willey
Abortion: Its Complications and Their Treatment	E. Bemis
Production, Handling and Distribution of Clean, Sanitary Milk.	Illus-
trated	ssius Way
Abortion from the Practitioner's Standpoint	
Correlation of Our Present Knowledge Regarding Infectious Abort	
Cattle V.	A. Moore
Tuberculin Tests for Tuberculosis	
Tuberculosis: Its Prevalence, Lesions and Interpretation of Tests. V.	
Therapeutics of Acute Mastitis	6.5
Vesicular Stomatitis (A brief statement of the recent outbreak a	-
horses and cattle)	W. Dimock

#### KANSAS VETERINARY MEDICAL ASSOCIATION

For the thirteenth annual meeting of the Kansas Veterinary Medical Association held at Wichita, Kans., Jan. 3 and 4, the following program was prepared:

lowing program was prepared:	*
Address of Welcome	Mayor of Wichita
Response to Address of Welcome	Dr. R. B. Rogers
President's Annual Address	Dr. W. J. Guilfoil
Urethral Calculi	Dr. L. D. Eastman
Some Useful Instruments and Appliances	Dr. C. E. Bassler
Chronic Diseases of the Mammary Glands of Cows	Dr. R. C. Moore
Case Reports	
The Practitioner's Round Table	Dr. H. Jensen
Question Box	
Vesicular Stomatitis	Dr. A. T. Kinsley
Infectious Abortion in Cows	Dr. O. W. Noller

Proprietary Remedies and Their Advertising Media Dr. Announcement of Clinic Program	B. W. Truax
Adrenalin DemonstrationDr	J. H. Burt
Dental Anaesthesia	R. Dykstra

## IOWA VETERINARY ASSOCIATION

The following program was arranged for the annual meeting
of the Iowa Veterinary Association at its meeting at Ames, Janu-
ary 9, 10, 11.
President's Address
Report of the Secretary- Treasurer
Some of the Most Common Parasites of the Digestive Tract. With report
of Cases and SpecimensFred R. Maxweli
Periodic Ophthalmia
Report of Committee on Therapeuties
Some of the More Common Diseases of the Heart
Report of the Committee on Diseases and TreatmentA. L. Wood
A Brief Résumé of the Principal Differences Between the New and Old
Anatomical Nomenclatures Burton R. Rodgers
Address of Welcome, for the CollegePresident R. A. Pearson
Address of Welcome, for the Town
Response for the Association Past President G. W. Blanche
Address on Therapeutics E. L. Quitman
Recent Notes on Poisonous Plants
Progress of Hog Cholera Control Work in Iowa
Case Report
My Observations in an Outbreak of Hemorrhagic Septicemia J. H. McLeod
Report of Committee on Sanitation
Case Reports
Report of Committee on Legislation
Lecture and Demonstration in Judging Horses
Report of Committee on Surgery
Chlorinated Lime as an Antiseptic in Practice
Vesicular Stomatitis. Illustrated
Some Points on the Surgical Anatomy of the Foot. Illustrated H. S. Murphey
Report of Committee on NecrologyL. W. Russell

## WISCONSIN VETERINARY MEDICAL ASSOCIATION

For the second annual meeting of the Wisconsin Veterinary Medical Association held at Madison, January 16 17, 18, the following program was prepared:

Address of Welcome	P.	Norgard,	Commissioner of Agriculture
Response			J. D. Lee
President's Address			

Some Personal Experiences with the Tuberculin Test
Discussion by R. S. Heer, T. H. Ferguson, J. F. Roub, C. M. Crane.
Summary of the Entire Situation
Brachial Paralysis
Azoturia W. H. Drehe
Infectious Gastro-enteritis in Calves R. E. Schuste
The Fox Industry J. S. Collin
Twins versus Free Martins
The Business Side of Practice
Canine Distemper
Symptomatic AlopeciaF. W. Sutcliff
Forage Poisoning
Lympharagia
Immunization of Farm Animals
Practical Castration of Cryptorchids
Communicable Skin Diseases from Animal to Man
Sero-toxin Treatment of Tuberculosis E. H. Agne
Supplementary Dietary Relationship Among Our Natural Food Stuffs
E. V. McCulloug
Hemorrhagic Septicemia
The Pathology of Sterility in Infectious Abortion W. L. Boy
A PaperF. J. Col
Ptomaine PoisoningJ. W. Beckwit
A Case Report
Report of the Clinic of the Summer Meeting
Clinic at the Infirmary of West and Wolcott.

## PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION

The program of the thirty-fourth annual meeting of this association, held at Harrisburg, January 23 and 24 was prepared as follows:

the Intradermal Abortus Test ...........John Reichel and M. J. Harkins Treatment of Sterility and Contagious Abortion of Cattle.....C. J. Marshall Reports:

Medicine and Surgery (including descriptions of Vesicular Stomatitis)

and the same of th	
R. M. St	aley
LegislationJ. N. Rosenber	rger
Milk and Meat Hygiene	per
Salmon Memorial	kins
Trustees	hall
erapeutics of Some of the Digestive Disorders of Bovines Louis A. K	lein

JOINT MEETING WITH ALLIED AGRICULTURAL ASSOCIATIONS

- Should the State Pay Indemnity for Animals Destroyed to Prevent the Spread of Disease?
- 2. State Dairy Inspection.
- 3. Pennsylvania Dog Laws.

#### U. S. LIVESTOCK SANITARY ASSOCIATION COMMITTEES

FINANCE. W. F. Crewe, Bismarck, N. D.; S. W. Allen, Watertown, S. D.; V. A. Moore, Ithaca, N. Y.

LEGISLATION. John R. Mohler, Washington, D. C.; Lester Howard, Boston, Mass.; C. E. Cotton, Minneapolis, Minn.

CREDENTIALS. P. F. Bahnsen, Atlanta, Ga.; W. J. Butler, Helena, Mont.; C. Way, New York City.

RESOLUTIONS. O. E. Dyson, Chicago, Ill.; T. E. Munce, Harrisburg, Pa.; G. Dunphy, Lansing, Mich.

PROGRAMME AND PUBLICATION. S. H. Ward, St. Paul, Minn.; D. M. Campbell, Chicago, Ill.; J. J. Ferguson, Chicago, Ill.

TICK ERADICATION. M. Jacob, Knoxville, Tenn.; C. A. Cary, Auburn, Ala.; E. M. Ranck, Agricultural College, Miss.; P. F. Bahnsen, Atlanta, Ga.; Penn Anderson, Kansas City, Mo.; R. M. Gow, Little Rock, Ark.

HOG CHOLERA CONTROL. J. W. Connaway, Columbia, Mo.; A. L. Hirlman, Atlanta, Ga.; F. A. Bolser, New Castle, Ind.; E. A. Cahill, Boston, Mass.; J. I. Gibson, Des Moines, Ia.; A. S. Cooley, Columbus, Ohio.

GRIEVANCES. S. F. Musselman, Frankfort, Ky.; A. W. French, Cheyenne, Wyo.; O. H. Eliason, Madison, Wis.

Advisory Committee to Secretary. E. Pegram Flower, Baton Rouge, La.; J. J. Ferguson, Chicago, Ill.; C. H. Stange, Ames, Ia.

COMMITTEE ON DISEASES. John Reichel, Glenolden, Pa.; A. T. Kinsley, Kansas City, Mo.; H. Preston Hoskins, Detroit, Mich.; J. A. Kiernan, Birmingham, Ala.; J. B. Hardenbergh, Philadelphia, Pa.

COMMITTEE ON INFECTIOUS ABORTION. Ward Giltner, East Lansing, Mich.; G. M. Potter, Washington, D. C.; B. B. Flowe, Raleigh, N. C.

## COMMUNICATIONS

Editor of the Journal of the American Veterinary Medical Association, Ithaca, N. Y.

#### THE BULL AS A FACTOR IN ABORTION DISEASE

In the January number of the Journal, near the bottom of page 644, in the article by Dr. J. F. Devine on the Twentieth Annual Meeting of the U.S. Livestock Sanitary Association, the following statement is made regarding a paper by Dr. W. E. Cotton and myself on "Practically Significant Facts About Abortion Disease":

"Does not believe the bull is an important factor in the spread of abortion diease."

This statement I believe should be corrected, because it is not in harmony with any opinion concerning the part the bull may have in the dissemination of abortion disease Cotton or I have ever expressed, and may be seriously misleading.

What Cotton and I actually did say in our paper concerning bulls, and I wish specially to call attention to the last three or

four lines, follows:

"Before ending our paper, we wish to say a few words about bulls and virgin female cattle. As we know, such animals at times react with abortion tests; but, apart from the fact that the reactions must be accepted as evidence to prove that infection with abortion bacilli occurs through other channels than the udder, we

know virtually nothing about their significance.

"As we have emphasized that our tests indicate that abortion bacilli do not persist in the bodies of cattle elsewhere than their udders and gravid uteruses, it is important that we should record one noteworthy, possibly though not certainly unique or very rare, exception to the common rule. This was a bull, whose history, briefly, is as follows: Reacted with abortion tests; was at once killed and a searching post mortem examination made. The only lesion found was an abscess involving the epididymis of one tes-The abscess was proved by cultural and animal inoculation tests to be infected with abortion bacilli. No other portion of the bull's body proved infected. Tests with blood, liver, spleen, lymph glands, testicles, different portions of the penis, seminal fluid, synovial fluid, etc., alike failed to reveal abortion bacilli.

"Our attempts to produce a similar case of infection artificially failed; and, in agreement with the difficulties many investigators have had to obtain incriminating evidence against bulls, we have thus far failed to infect bulls in a way that justifies the assumption that they are important factors in the dissemination of abortion disease. Our attempts include subcutaneous and intravenous injections of suspensions of abortion bacilli, feeding of abortion bacilli and exposures through copulation. One bull

failed to become infected though he served a chronically bulling cow so frequently that his organ of copulation became abraded and inflamed. Prior to the copulations in this case suspensions of abortion bacilli were injected into the vagina and uterus of the cow.

"Regarding the dissemination of abortion disease by bulls we may say, however, that it would be foolhardy in the dim light of our present knowledge to take liberties with reacting bulls, or bulls from infected herds, or promiscuously used bulls."

With the hope that you may be able to give this correction a

place in the Journal, I am, very sincerely yours,

E. C. SCHROEDER.

Editor of the Journal of the American Veterinary Medical Association, Ithaca, N. Y.

#### RETAINED PLACENTA

In the December issue I notice a discussion on the treatment of retained placentas. In my experience of 12 years, Dr. DeVine's treatment is the only safe and curative one. Important is his advice and warning not to drag on the membranes; that is what causes more inflammation, etc.

I have had the chance to see three cows die from adherent membranes, and one mare. On autopsy I found membrane attached in horn. I cannot describe the looks and condition of that swollen organ. I am at a loss to know how any drug could cure. If hot irrigations would not cure, they would cleanse and reduce conditions somewhat. There is no drug equal to hot water for reducing congestions or for cleansing, soothing and stimulating.

If practitioners will follow Dr. DeVine's advice, use plenty of water, and not pull on membranes, there will be no shock or death. I had several die from dragging on membranes and not using sufficient water and often enough. They were in a bad condition and I made it worse.

Walter Lawson.

Editor of the Journal of the American Veterinary Medical Association, Ithaca, N. Y.

#### INFLUENZA AND BRUSTSEUCHE

In the Journal of the Association for September, 1916, there appears on page 848 an abstract of the work on Brustseuche reported by Gaffky and Lühr from the Imperial Health Office in Berlin. This abstract in the Journal is from an abstract of the original printed in the Weiner Tierärztliche Monatsschrift for December 1915, entitled: "Zur Epidemiologie der Brustseuche der Pferde." The original report made by Gaffky and Lühr is printed in the "Zeitschrift f. Veterinärkunde" in the years 1912 and 1913. This work was originated by Koch in 1905, and the final report by Gaffky and Lühr in 1913 presents one of the most

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important publications in veterinary literature. Without discussing the details of the report I wish only to mention that their investigations confirmed those of previous workers, in establishing the fact that equine influenza and Brustseuche (equine contagious pleuro-pneumonia) are not different forms of the same disease; but that they vary widely in their period of incubation, as well as in their epidemiology, two facts of great importance in the control of pneumonia.

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In the abstract in the *Journal* made by Mr. Berg, the conclusions of Gaffky and Lühr in regard to Brustseuche are made to apply to influenza. In other words "Brustseuche" has been translated into "Influenza." Thus the report of their conclusions is

entirely erroneous.

I have no desire to discuss the opinion that there is only one disease, namely influenza, at a time when the American Veterinary Medical Association holds annual symposiums on these diseases under the subject of "Shipping Fever or Influenza," and the United States Live Stock Sanitary Association resolves that the alarming losses from influenza or shipping fever should be controlled; but I would respectfully call attention to this important publication, and request that the authors be correctly reported.

Very truly yours,

D. H. UDALL.

## REVIEWS

#### LAMENESS IN THE HORSE

J. V. LACROIX, D.V.S.

Professor of Surgery, The Kansas City Veterinary College.

Author of Animal Castration.

Illustrated.

Chicago.

American Journal of Veterinary Medicine.
1916

This book, which contains 261 pages, covers rather comprehensively the entire subject of lameness, giving in detail the principles of lameness and the specific diseases producing the various types of lameness. This book is divided into four sections.

Section 1. This section deals particularly with the etiology and occurrence of lameness, with a thorough description of the general diseased processes bringing about the symptoms of disturbed motion. This section also gives an interesting description of different classes of fractures, explaining the conditions found in each class; luxations, the classification and significance of each; arthritis, classification and pathological condition found in each; affections of muscles and tendons, nerves, blood-vessels, lymph glands, bursae, etc. This section is quite an important one on account of a thorough explanation of the etiological factors producing the various types of lameness.

Section 2. The diagnostic principles of lameness are of great importance to the student and the practitioner. One of the weak points in treating lameness has been the lack of a systematic and thorough examination of the patient in order to arrive at a correct diagnosis. This section deals particularly with the methods of examination of the animal, the attitude, the passive movements, the character of the gait, and the various special methods of examination which are so essential in a great many cases before a diagnosis can be made positive. The student and practitioner will find much information in this section, and should be read carefully by every diagnostician of lameness.

Section 3. Lameness in the fore limb is discussed fully in this section, beginning with an anatomo-physiological review of the parts of the fore limb, followed by a systematic and thorough description of all the diseased conditions from the scapula to the foot. Each one of the conditions found in this location is well illustrated and described, the characteristic features of each pointed out, so that it would be of great assistance in making a positive diagnosis in the subject.

Section 4. Lameness in the hind limb in this section is treated in a similar manner to that of the fore limb, all of the diseased conditions are thoroughly and systematically described and well illustrated.

The descriptive matter in this book is all that one could desire, and the illustrations (particularly the anatomical cuts) are excellent. This latter feature materially adds to the value of the book. The book is neat in appearance, well bound, and should be obtained and read carefully by every student and practitioner. The author should be commended for giving to the veterinary profession such a valuable treatise on the subject of lameness.

J. H. S. and O. V. B.

#### PATHOLOGY AND THERAPEUTICS OF THE DISEASE OF DOMESTIC ANIMALS

HUTYRA AND MAREK: Edited by Mohler and Eichhorn Alexander Eger, Publisher, Chicago, Ill.

This well known work of two handy volumes scarcely needs introduction to the veterinary world. It is the second authorized American edition from the fourth revised and enlarged German edition. In the new English edition the editors included not only all of the new features of the last German edition, but in many instances they have added such data as relate especially to conditions prevalent in this country. The illustrations were given special attention: the half tones and partially colored cuts were increased in number from 361 to 438, and the colored plates from 15 to 19. There are 2346 pages in the two volumes, an increase of 220 pages over the first English edition. Small print was more liberally used than previously, in order that the publication would be increased in volume as little as possible.

In Volume I, on infectious diseases, an important change has been made with reference to the catarrhal form of influenza and contagious pneumonia of horses, which in view of the most recent investigations of the German Imperial Board of Health appeared to justify the separation and differentiation of these two diseases. This volume, in addition to the new chapters on paratyphus of hogs and on sporotrichosis, also contains many elaborations in most of the chapters, especially with reference to etiology, allergic reactions, serodiagnostic methods, immunization and chemo-therapy. The chapter on protozoan diseases has been carefully revised and brought up to date by the necessary additions. Hutyra and Marek, in their German edition have changed the name of the causative agent of calf diphtheria, from Bacillus necrophorus to Bacillus necroseos. The American editors have retained the older name.

In Volume II, on organic diseases, new chapters have been prepared on catarrh of the sphenoidal sinus, dysentery, localization of the cerebral affections, etc. Section VII, on disease of the pancreas, should be of particular interest to the research veterinarian of the future. This chapter contains not quite three pages. In human medicine, whole volumes have been written on this subject

—a striking illustration of the undeveloped condition of certain parts of veterinary medicine.

The German edition is naturally written in idiomatic German. The difficulty of translating into idiomatic English can only be appreciated by those who have wrestled with it. There is a pitiful lack of medical dictionaries in foreign languages, suitable to the needs of the veterinarian. Under the circumstances the translators have certainly done a splendid piece of work. A selected list of publications at the end of each disease, will enable the reader to obtain directly from the library, the literature on any disease of particular interest.

Those veterinarians who speak and read English only are fortunate in having this standard work on the subject of Veterinary Medicine presented in such a masterly form by the most representative men in our profession. The writers, translators, editors, and publishers are each entitled to our most hearty congratulations for the masterly way in which the entire work has been performed.

C. J. M.

#### A TEXT-BOOK OF GENERAL BACTERIOLOGY

EDWIN O. JORDAN, Ph.D.

Professor of Bacteriology, in the University of Chicago and in Rush Medical College.

Fifth edition thoroughly revised. Octavo of 669 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, \$3.25 net.

The fact that the fifth edition of this book has followed the fourth in less than two years, indicates the value and attractiveness of its contents. Although it has been thoroughly revised it remains small enough for a text. The more essential additions of new material are concise discussions on the Scheck reaction, mouth entamebae, Hodgkin's disease and a chapter on typhus fever. There are minor changes throughout the volume.

Although a comparatively new subject, bacteriology has developed extensively in so many different directions that it is no longer possible to prepare a text book that adequately covers the entire subject. The student of medicine, veterinary medicine, dairying, agronomy, sanitary science and certain of the industries each require a treatise containing, in addition to the general classifications and principles of bacteriology, certain definite information

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about microorganisms immediately associated with their respective subjects. While there is considerable over-lapping, the subject matter in each is quite different from that in the others. Again the scientifically trained person needs for his general understanding of the phenomena of nature, including health and disease, a somewhat broad knowledge of microorganisms—what they are, where they are and what they do.

Dr. Jordan believes that bacteriology should have a place in every general scientific course. As he teaches this subject both to university students in scientific courses and to medical students, his book, as would be expected, is designed for the use of students in such courses. As the author is a distinguished epidemiologist, it naturally follows that the greater part of the description of species is devoted to those microorganisms causing human infections and epidemics. There are, however, in addition to these strictly medical phases of this subject, interesting and instructive chapters on higher bacteria and protozoa pathogenic for man; filterable viruses; bacteriology of milk and milk products; nitrifying bacteria; bacteria in the arts and industries; bacteria of air, soil and water; and bacterial diseases of plants.

\* The chapters that are perhaps the most noteworthy for their excellence in explaining difficult technical subjects are those on the structure and mode of development of bacteria; composition of bacteria; the effect of physical and chemical agents upon bacteria; and the effect produced by bacterial growth. The other chapters on classification and general bacterial technique are good.

The organic structure of the book is commendable. In style it is clear and the space devoted to the various topics is well proportioned. In selecting data from the voluminous literature the author has exercised a delicate discrimination and presented only that which seems to be of the most importance. There are numerous references to the literature which add to its value. The text illustrations, of which there are 178, are excellent.

There are several minor points on which opinions may differ as to the interpretation of phenomena and in a few instances slight changes suggest themselves. However, these are in connection with topics that are as yet more or less controversial. As the author is a research worker of authority and a teacher of high standing, the text, as well as the subject matter, is admirably adapted to the needs of students. It is difficult to suggest how a greater number of important bacteriological facts could be more fully or concisely presented. For medical students or for those wishing a knowledge of the role bacteria play in nature's economy, this volume is to be highly recommended.

The publishers have done their part in a very acceptable manner.

## NECROLOGY

#### JOHN TEMPANY

Dr. John Tempany died at his home in Walla Walla, Wash., December 6, 1916, at a ripe old age. He was a native of Ireland and was formerly an enlisted man in the U. S. Army and was appointed Senior Veterinarian in the 9th Cavalry after the army reorganization about 1869. He occupied that position for many years until retired recently under the former law.

#### LEVI E. JOHNSON

It is with sincere regret that we announce the death ,after a brief illness, of Dr. Levi E. Johnson on January 17, 1917, at San Antonio, Texas. He was graduated from the Veterinary Department of the University of Pennsylvania, in 1896, and pursued a post graduate course at the San Francisco Veterinary College in 1901, and the McKillip Veterinary College in 1903. He entered the service of the Bureau of Animal Industry May 1, 1905, and was detailed to field work with headquarters at Kansas City, Missouri. He rendered very efficient service and July 1, 1911, was placed in charge of the inspection of live stock for importation and exportation along the boundary line between the United States and Mexico, with headquarters at San Antonio, Texas. He showed great energy and ability in the performance of his duties during the recent disturbance along the Mexican Border, and his many friends will be grieved to learn of his sudden demise.

## **MISCELLANEOUS**

- —The next meeting of the Hudson Valley Veterinary Medical Association will be held at Albany, N. Y., February 14.
- —Dr. Hoskins Becomes Dean of the New York State Veterinary College at New York City. Dr. W. Horace Hoskins, who for many years has been associated with the Veterinary School at the University of Pennsylvania at Philadelphia, has been appointed Dean of the New York State Veterinary College at New York City. At present Dr. Hoskins will retain his residence in Philadelphia and spend a portion of his time at New York.
- —The next meeting of the Alabama State Veterinary Medical Association will be held February 23d and 24th.
- —Dr. G. E. Corwin, has removed from Canaan, Conn. to 741 Albany Ave., Hartford, Conn.
- —Dr. O. E. McKim of Watertown, N. Y. was one of the Americans aboard the steamer Georgic, one of the vessels recently sunk by the German raider. It was not definitely ascertained whether or not he was among those saved.
- —The next meeting of the California State Veterinary Medical Association will be held at Petaluma, Cal., on March 14th, 1917.
- —No Foot-and-Mouth Disease in England. A cable states that the former diagnosis was an error and the Board of Agriculture has removed all restrictions which were promptly placed on the trade after the first diagnosis.
- —Dr. Guy T. Cole has removed from Oklahoma City, Okla. to Moultrie, Ga.
- —It is reported that the mutton deficiency in the United States in 1914 was.8,000,000 pounds, in 1915, 12,000.000.
- -Dr. S. J. Horne has removed from Lexington, Ga. to Thomson, Ga.
- —Dr. F. D. Russell, formerly of Hebron, Ill., is now deputy state veterinarian, located at Presho, Lyman Co., So. Dak.
- —Conferences of Cattle Tick Eradication Workers. Problems involved in the elimination of cattle fever from the Southern States and methods of furthering the work were discussed at a con-

ference of employees of the U. S. Department of Agriculture engaged in cattle tick eradication and officials of state live stock sanitary organizations held in Atlanta, Georgia, January 8 to 12. The conference was attended by the Federal and State employees engaged in tick eradication work in the seven states east of the Mississippi still not free from tick infestation.

A similar conference of the tick eradication workers of the four states west of the Mississippi in which the pest is still present will be held in Dallas, Texas, January 29 to February 2. The papers and discussions at these conferences will deal with general organization, preliminary activities, the work of systematic tick eradication, the advantages of state-wide tick eradication laws, the construction of vats, educational publicity, etc.

- —Dr. Lester E. Willyoung, veterinarian of the 11th Cavalry, U. S. A., has been retired under the new law, after a service of more than 15 years, with the rank of Captain.
- —Dr. Anderson Crowforth is convalescing after a course of the Pasteur treatment for rabies. Dr. Crowforth was bitten, by a rabid dog, in seven places about the lips and lower jaw.
- —Dr. Samuel Glasson, Jr., of the 7th Cavalry, U. S. A., after more than five years of service, has been placed upon the retired list with the rank of First Lieutenant.
- —Dr. James B. Haynes of the Coast Artillery, U. S. A., is a patient at the Sanitarium at Fort Bayard, New Mexico.
- —Dr. J. I. Handley, formerly assistant professor in veterinary science at the A. and M. College, West Raleigh, N. C., has accepted the position of assistant professor of veterinary surgery and clinics at the Michigan Agricultural College, East Lansing, Mich.
- —The marriage of Miss Pearl Peacock of Eastman, Ga., to Dr. Joseph J. Vara, occurred at the home of the bride, December 26, 1916.
- —Medal for Dog of Princess Pat's Regiment. In recognition of a dog's devotion to his master and a man's sacrifice for his country, friends of the Toronto Humane Society have given a medal to Bobs, a fine Collie. The dog's master, Private Bob Monroe, formerly Mayor of Elk Lake, has been serving with the Princess Patricias in the trenches. For eight months master and dog were

in the trenches. Both were wounded and treated in the same hospital.

- —Dr. J. B. Clancy has removed from East St. Louis, Ill. to Jacksonville, Ill.
- —Dr. H. E. Lent has removed from Akeley, Minn. to Park Rapids, Minn.
- —Dr. Chas. B. Breininger of Washington, D. C has removed to Chevy Chase, D. C.
- —According to a report from Zurich, Switzerland, the veterinary school at Hanover has conferred upon General Hindenburg the degree of Doctor of Veterinary Science honoris causa.
  - -Dr. H. C. Johnson has removed from Brighton to Adel, Ia.
- —Dr. D. B. Stewart has removed from Kasson, Minn. to 938 W. 87th St., Chicago, Ill.
- -The Report of the Veterinary Director General of Canada for the year ending March 31, 1915, states there has been a further reduction in cases of glanders. Four provinces have been entirely free from the disease. Hog cholera gives trouble and anxiety and causes serious losses in the districts where it appears. Delay in notification hampers the successful prosecution of the work. A serious outbreak of dourine the previous year has occupied the attention of the staff in southern Alberta. Progress has been made. Horse mange continues to furnish work for the inspectors, but the outbreaks have been small, isolated and readily controlled except when the owners of the animals are careless in carrying out the necessary treatment. Progress has been made in dealing with cattle mange. The area under special mange quarantine has been further reduced. In the control of rabies it was necessary to impose quarantine in limited areas in Ontario, Saskatchewan, and Quebec. The measures taken were successful in stamping out the disease. There were no human fatalities. A few flocks in Manitoba were affected with sheep-scap. After dipping and a period of quarantine the disease was eradicated. The origin of the trouble was untraced. Tuberculosis in Canada, as in other countries, is widespread and no district or province has escaped infection. Outbreaks of anthrax occurred in two provinces, but were controlled by the application of the Pasteur method of vaccination of all exposed animals,

Ergotism was also found in two herds of cattle in Alberta. Ergot was found upon the rye straw used for fodder. The prevalence of foot-and-mouth disease in the United States during this period required much vigilance on the part of the authorities to protect Canada from its ravages. There are appendices containing reports from the inspectors of the various provinces and from the research laboratories by pathologists, Higgins, Watson and Hadwen.

—At the last meeting of the Nebraska Veterinary Medical Association, the following officers were elected: President, Dr. G. J. Collins, West Point; Vice-President, Dr. G. A. Young, Syracuse; Secretary-Treasurer, Dr. S. W. Alford.

#### AMERICAN RED STAR ANIMAL RELIEF

As most of our readers know, the American Red Star Animal Relief was organized, on the suggestion of the Secretary of War of the United States, in order to perform for animals the same relief work which the Red Cross undertakes for soldiers. This work is being carried on under the auspices of The American Humane Association. Recently this Association sent its special representative to the Mexican border to examine into the condition of the army horses and mules. Thousands upon thousands of these animals were rushed to the border, from distant states, when the first alarm over possible war was heard. There were no suitable stables or shelters to receive the animals. Contagious diseases soon broke out among them. Shipping fever was rampant and large numbers of the animals have died. The intrinsic loss to the government has been great. The suffering of the poor beasts has been severe. Quantities of animals which did not die have be incapacitated for good service. There can be no doubt but what there is a great need here for efficient volunteer veterinary relief, under the auspices of the American Red Star organization. If any desire to help in this meritorious work, which combines a labor of patriotism and humanity, let them send a generous subscription promptly, addressed to "Headquarters American Red Star Animal Relief," Albany, New York.—The National Humane Review.